

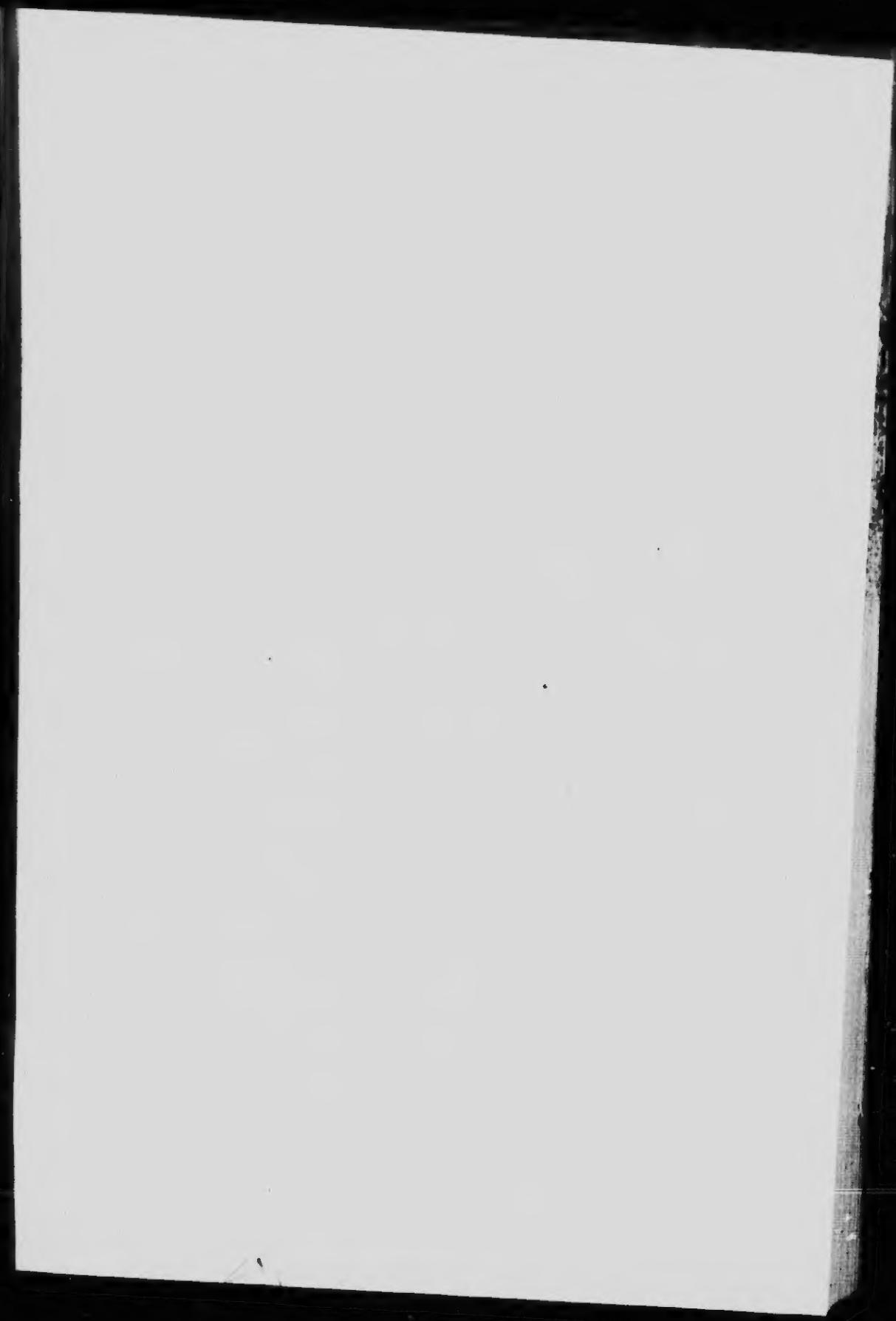
PUBLIC SCHOOL  
ARITHMETIC

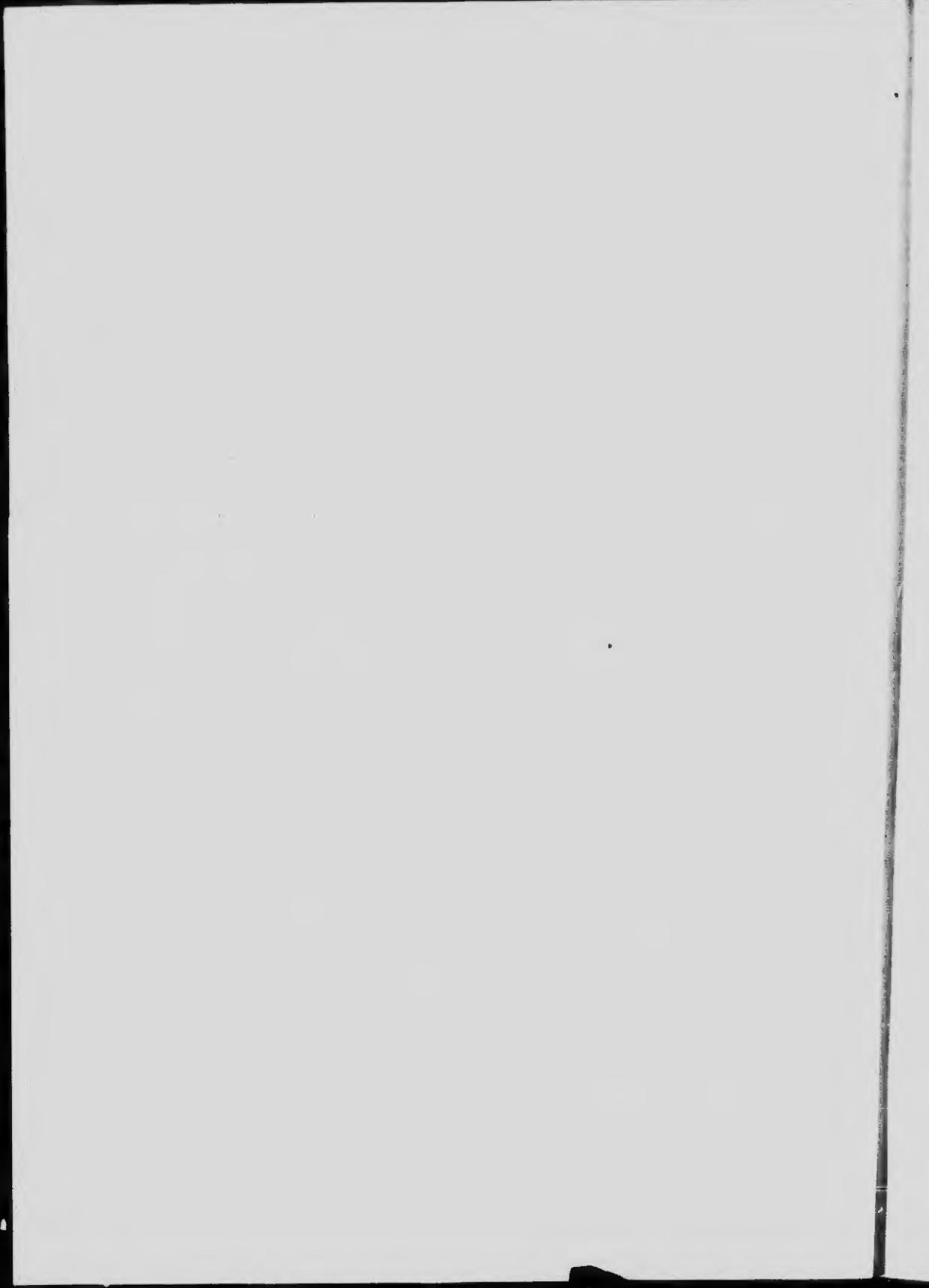
GRADES ONE AND TWO

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582

PHILADELPHIA CENTRAL

1000





PUBLIC SCHOOL  
ARITHMETIC

FOR USE IN

GRADES ONE AND TWO

TORONTO

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## PREFACE.

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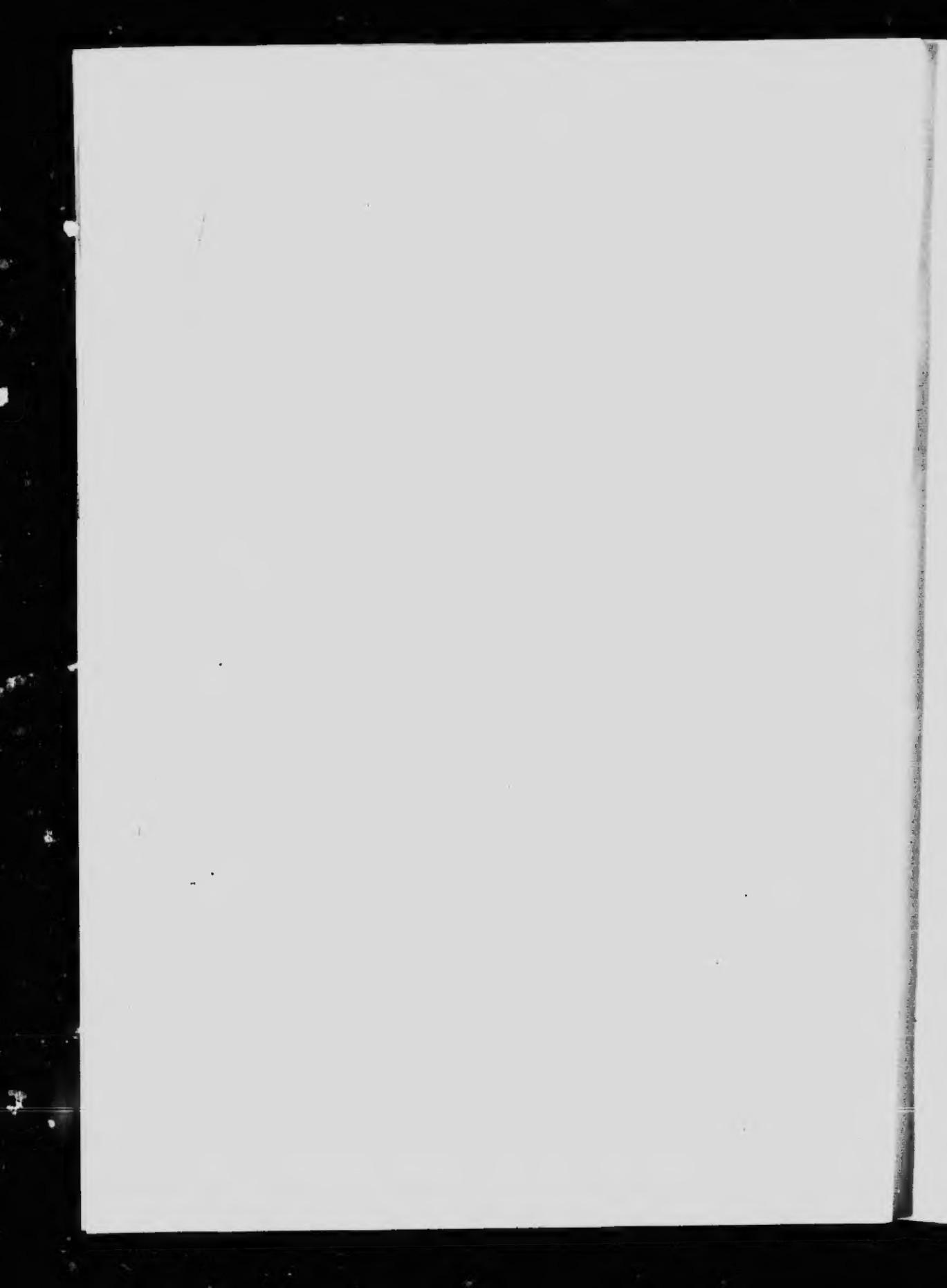
The Public School Arithmetic for Grades I. and II. is so arranged that every word of it is for the pupil. Directions regarding the use of the various exercises, and all other matter for the guidance of the teacher, have been put in a separate volume, "The Hand-book to the Public School Arithmetic for Grades I. and II."

It will be necessary therefore to use the text-book and the hand-book together; neither can be used without the other. It is intended that the teacher before assigning an exercise should read carefully in the hand-book the explanation regarding that exercise; the principle involved should then be taught thoroughly to the class; after this the exercise should be assigned for the pupils to do.

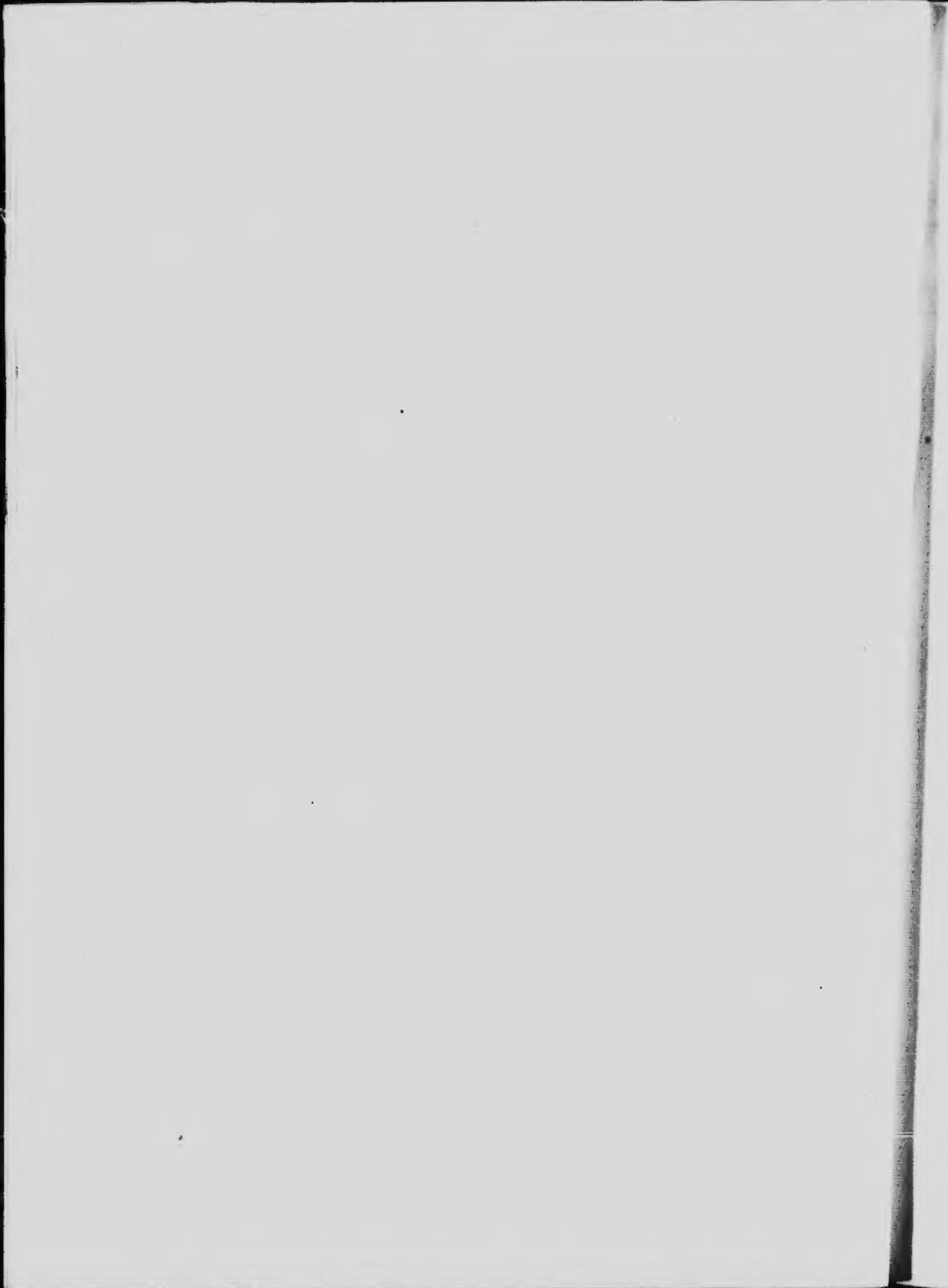
The division of the work into two volumes,—one for the pupil and one for the teacher,—has proved very advantageous. It has made it possible to give to the pupil a sufficient amount of suitable exercises since it omits from his book everything that is of no use to him. It has also enabled the Authors to give in the hand-book as full a treatment of methods, devices, suggestions and directions, as they thought would be helpful to the young teacher.

Where this text-book is being used, it is proving a great boon especially to the junior classes. It is saving the teacher a large amount of the daily labour involved in composing a sufficient amount of suitable exercises, well adapted to the needs of the class, and in harmony with the course of study and modern methods of teaching.

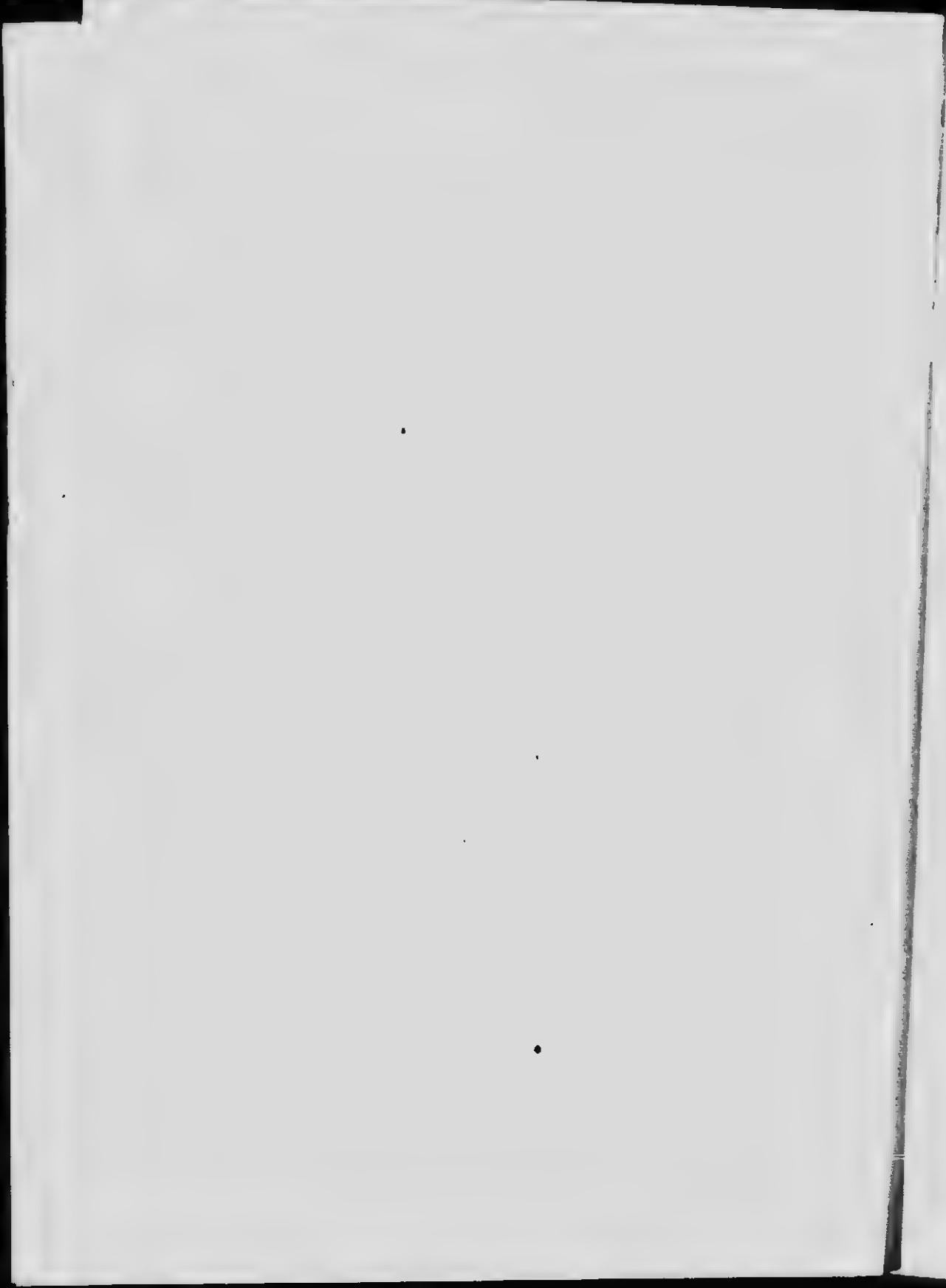
THE AUTHORS



## **CONTENTS**



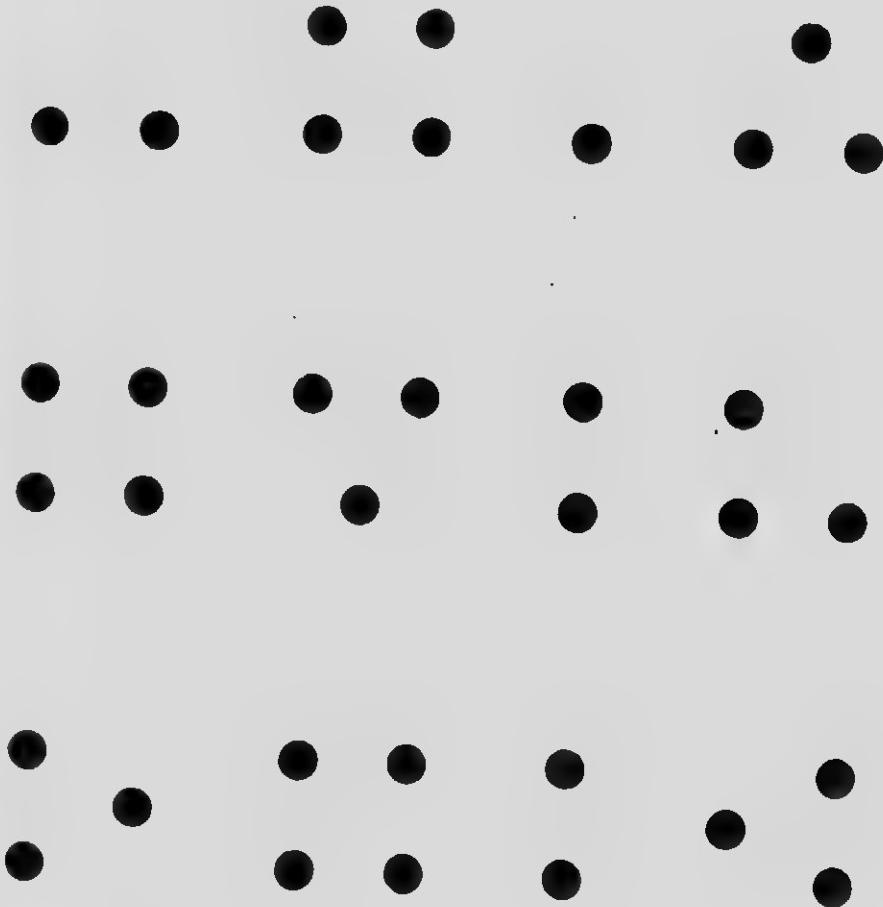
**GRADE ONE**

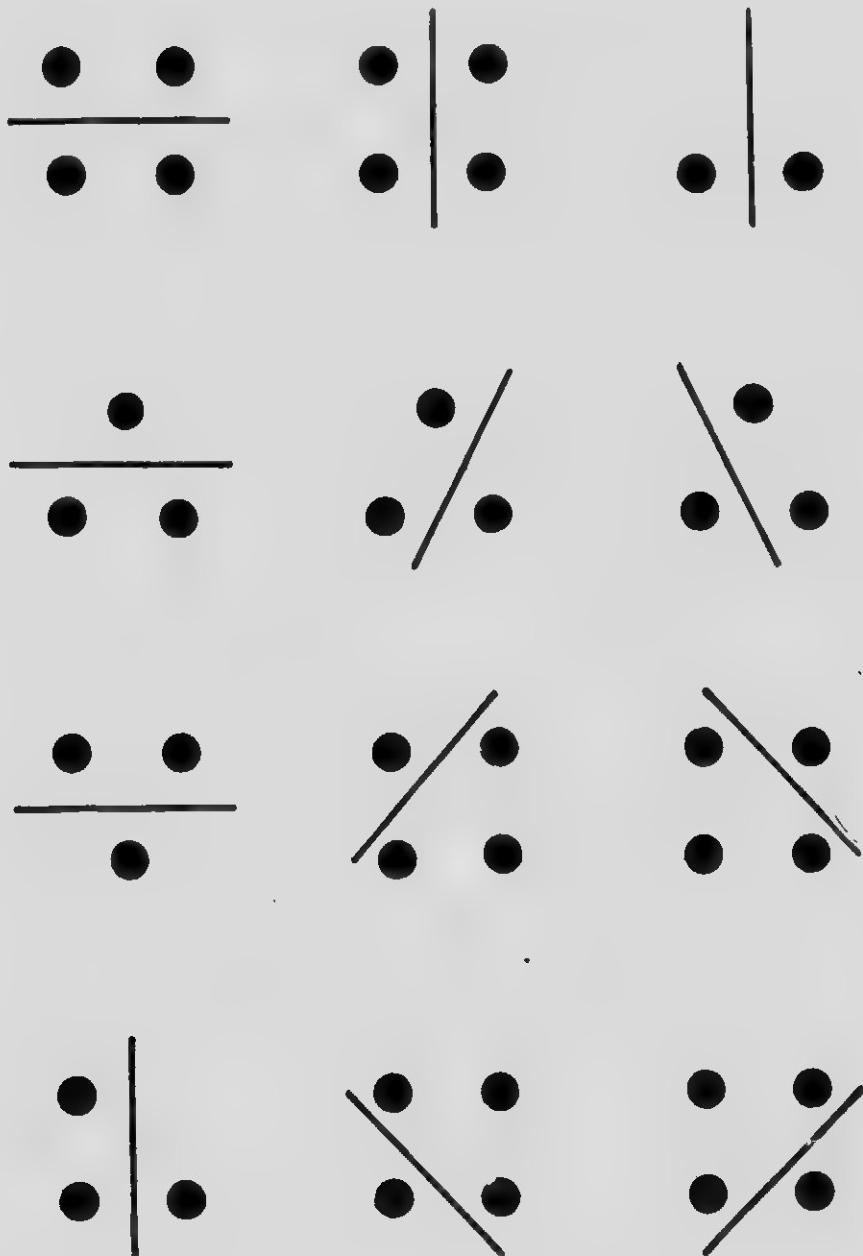


# PUBLIC SCHOOL ARITHMETIC

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GRADE ONE







A dot pattern showing division. There are 5 dots above a horizontal line and 4 dots below it.

A dot pattern showing division. There are 4 dots above a horizontal line and 3 dots below it.

A dot pattern showing division. There are 6 dots above a vertical line and 3 dots below it.

A dot pattern showing division. There are 5 dots above a vertical line and 3 dots below it.

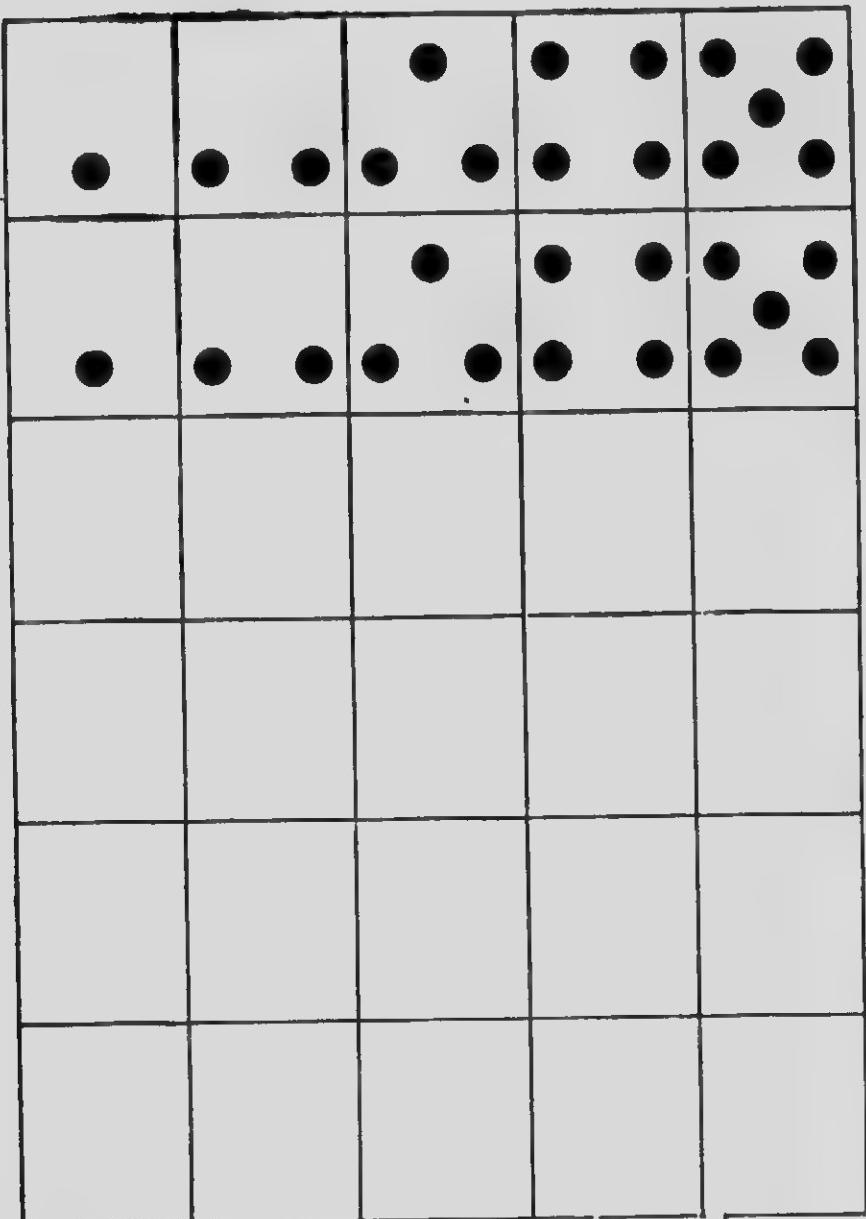
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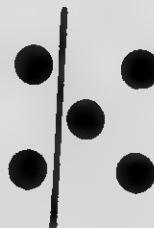
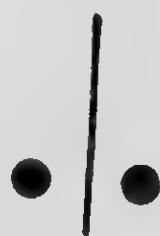
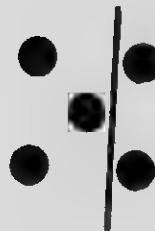
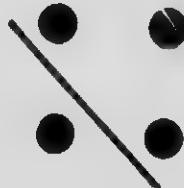
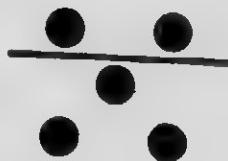
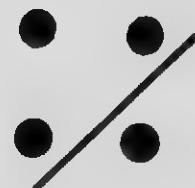
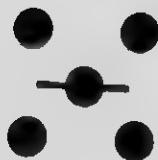
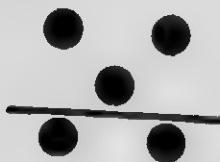
A dot pattern showing division. There are 4 dots above a horizontal line and 3 dots below it.

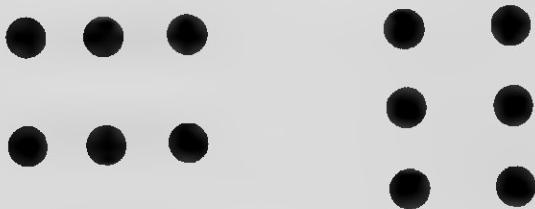
A dot pattern showing division. There are 6 dots above a vertical line and 3 dots below it.

A dot pattern showing division. There are 5 dots above a vertical line and 3 dots below it.

A dot pattern showing division. There are 4 dots above a vertical line and 3 dots below it.



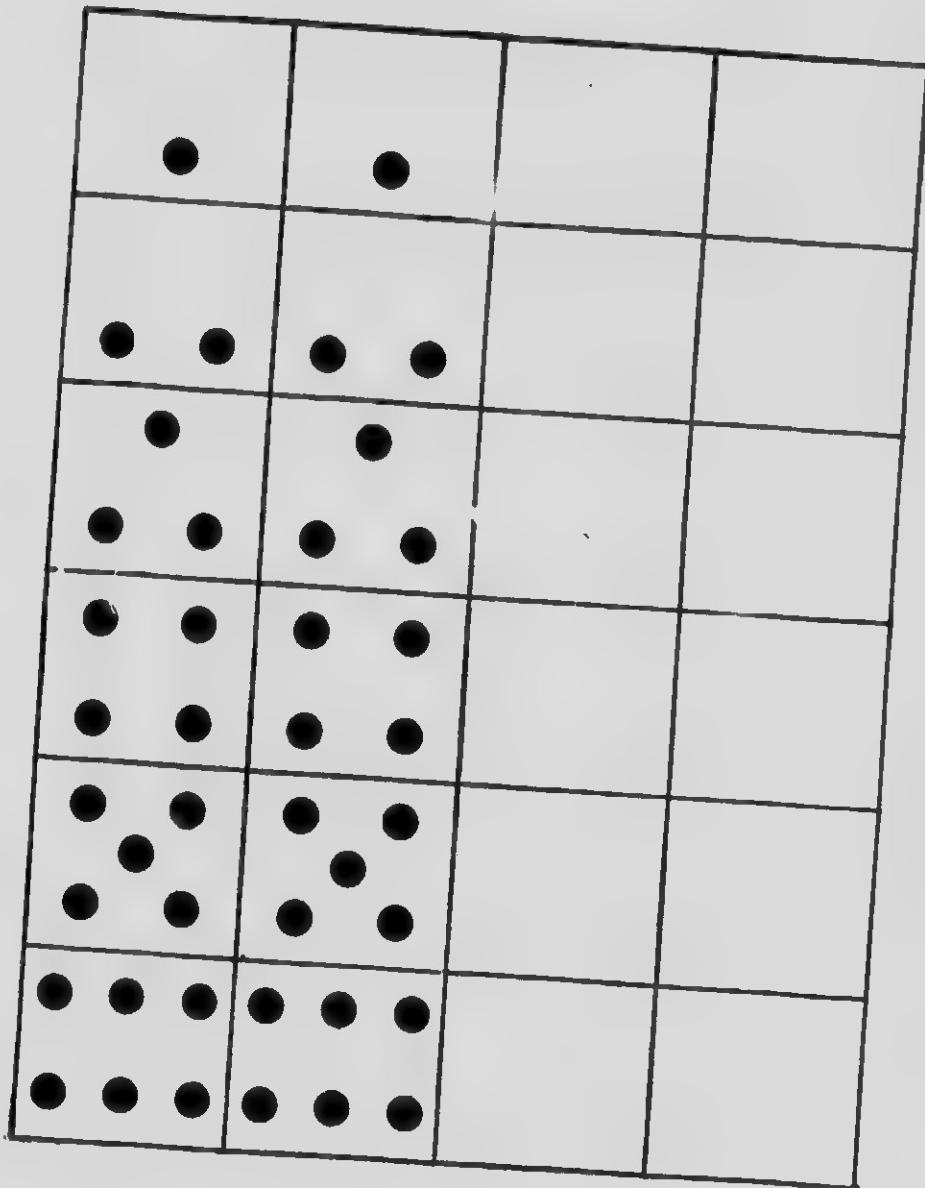


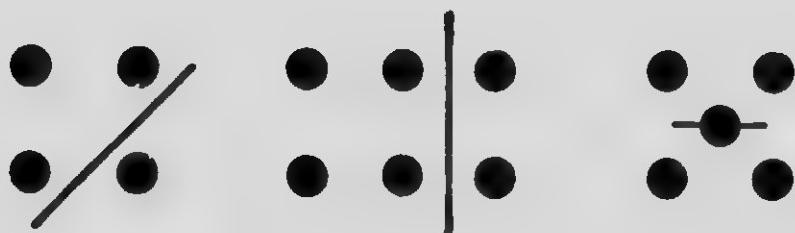
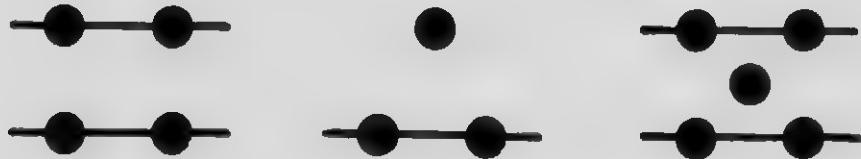


$$\begin{array}{|c|c|} \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \end{array} \quad \begin{array}{|c|c|} \hline \bullet & \bullet \\ \hline \bullet & \bullet \\ \hline \end{array} \quad \begin{array}{c} \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet \\ \hline \end{array}$$

$$\begin{array}{c} \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet \\ \hline \end{array} \quad \begin{array}{c} \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet \\ \hline \end{array} \quad \begin{array}{c} \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet \\ \hline \end{array}$$

$$\begin{array}{c} \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet \\ \hline \end{array} \quad \begin{array}{|c||c||c|} \hline \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet \\ \hline \end{array} \quad \begin{array}{c} \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet \\ \hline \end{array}$$





## PUBLIC SCHOOL ARITHMETIC.

• • •  
• / • 4 • • • 6

• • 3 • 5 • 2

1 2 3 4 5 6  
1 2 3 4 5 6  
1 2 3 4 5 6

3 6 1 5 2 4 3 2  
6 4 2 3 1 5 6 4  
2 5 4 6 3 2 5 2  
5 3 5 2 4 6 2 5  
2 5 3 4 1 5 6 3

	1	
	2	
	3	
	4	
	5	
	6	

$$\begin{array}{r} 5 + 6 \\ 3 + 4 \\ 6 + 2 \\ 2 + 5 \\ 1 + 4 \\ 6 + 3 \end{array}$$

$$\begin{array}{r} 2 + 4 \\ 3 + 5 \\ 5 + 4 \\ 6 + 1 \\ 2 + 2 \\ 6 + 6 \end{array}$$

$$\begin{array}{r} 8 + 2 \\ 5 + 5 \\ 4 + 6 \\ 5 + 3 \\ 6 + 5 \\ 8 + 4 \end{array}$$

$$\begin{array}{r} 4 + 2 \\ 2 + 5 \\ 3 + 6 \\ 5 + 3 \\ 6 + 2 \\ 3 + 5 \end{array}$$

$$\begin{array}{r} 3 + 4 \\ 2 + 6 \\ 1 + 5 \\ 6 + 4 \\ 3 + 6 \\ 5 + 3 \end{array}$$

$$\begin{array}{r} 2 + 2 \\ 3 + 3 \\ 5 + 5 \\ 6 + 6 \\ 4 + 4 \\ 1 + 1 \end{array}$$

$$\begin{array}{r} 1 + 1 \\ 2 + 1 \\ 2 + 3 \\ 4 + 2 \\ 1 + 3 \\ 4 + 5 \end{array}$$

$$\begin{array}{r} 2 + 2 \\ 3 + 6 \\ 2 + 5 \\ 4 + 3 \\ 3 + 5 \\ 6 + 2 \end{array}$$

$$\begin{array}{r} 3 + 1 \\ 2 + 4 \\ 3 + 2 \\ 6 + 4 \\ 4 + 5 \\ 2 + 3 \end{array}$$

$$\begin{array}{r} 1 + 1 = \\ 2 + 2 = \\ 3 + 3 = \\ 1 + 4 = \\ 2 + 3 = \\ 5 + 1 = \end{array}$$

$$\begin{array}{r} 3 + 2 = \\ 1 + 2 = \\ 4 + 1 = \\ 2 + 3 = \\ 5 + 1 = \\ 2 + 2 = \end{array}$$

$$\begin{array}{r} 1 + 5 = \\ 2 + 1 = \\ 3 + 2 = \\ 1 + 1 = \\ 2 + 3 = \\ 4 + 1 = \end{array}$$

$$\begin{array}{r} 2 + - 6 \\ 3 + - 5 \\ 1 + - 6 \\ 2 + - 4 \\ 1 + - 5 \\ 4 + - 6 \end{array}$$

$$\begin{array}{r} 5 + - 6 \\ 1 + - 2 \\ 2 + - 3 \\ 4 + - 5 \\ 2 + - 6 \\ 1 + - 4 \end{array}$$

$$\begin{array}{r} 3 + - 6 \\ 2 + - 3 \\ 1 + - 6 \\ 4 + - 5 \\ 3 + - 4 \\ 5 + - 6 \end{array}$$

$$\begin{array}{r} + 2 - 3 \\ + 3 - 6 \\ + 4 - 5 \\ + 2 - 6 \\ + 1 - 3 \\ + 5 - 6 \end{array}$$

$$\begin{array}{r} + 3 - 4 \\ + 1 - 5 \\ + 2 - 4 \\ + 1 - 6 \\ + 4 - 6 \\ + 3 - 5 \end{array}$$

$$\begin{array}{r} + 1 - 2 \\ + 2 - 5 \\ + 1 - 4 \\ + 2 - 6 \\ + 3 - 4 \\ + 1 - 6 \end{array}$$

$$\begin{array}{r} 3 + 1 - \\ 2 + 4 - \\ 5 + 1 - \\ 1 + 3 - \\ 2 + 2 - \\ 1 + 4 - \end{array}$$

$$\begin{array}{r} 2 + -5 \\ 3 + -6 \\ 1 + -4 \\ 2 + -5 \\ 4 + -6 \\ 1 + -3 \end{array}$$

$$\begin{array}{r} + 3 - 6 \\ + 2 - 4 \\ + 1 - 6 \\ + 4 - 5 \\ + 3 - 5 \\ + 1 - 4 \end{array}$$

$$\begin{array}{r} + 2 - 5 \\ + 4 - 6 \\ + 1 - 2 \\ + 3 - 4 \\ + 5 - 6 \\ + 1 - 3 \end{array}$$

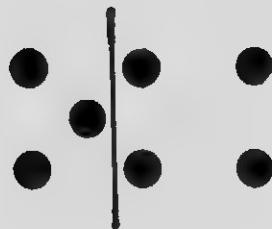
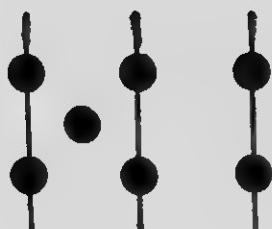
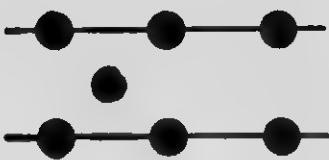
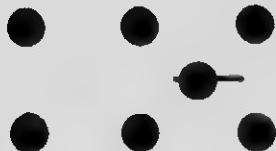
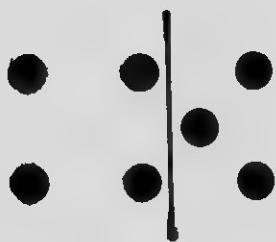
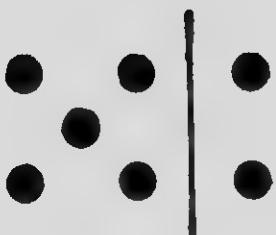
$$\begin{array}{r} 2 + 4 - \\ 3 + 1 - \\ 1 + 5 - \\ 2 + 2 - \\ 3 + 2 - \\ 1 + 4 - \end{array}$$

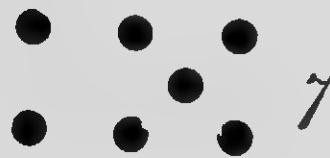
$$\begin{array}{r} 3 + -4 \\ 2 + -5 \\ 4 + -6 \\ 1 + -5 \\ 2 + -2 \\ 3 + -5 \end{array}$$

$$\begin{array}{r} 3 + 2 - \\ 2 + 4 - \\ 1 + 2 - \\ 3 + 1 - \\ 2 + 1 - \\ 1 + 5 - \end{array}$$

$$\begin{array}{r} + 3 - 6 \\ + 2 - 4 \\ + 1 - 6 \\ + 5 - 6 \\ + 2 - 5 \\ + 3 - 4 \end{array}$$

$$\begin{array}{r} 2 + -6 \\ 1 + -3 \\ 3 + -5 \\ 4 + -5 \\ 1 + -2 \\ 1 + -4 \end{array}$$





7

$$\begin{array}{r} 7 \\ - 4 \\ + \end{array}$$

$$\begin{array}{r} 7 \\ - 2 \\ + \end{array}$$

$$\begin{array}{r} 7 \\ - 1 \\ + \end{array}$$

$$\begin{array}{r} 7 \\ - 3 \\ + \end{array}$$

$$\begin{array}{r} 7 \\ - 5 \\ + \end{array}$$

$$\begin{array}{r} 7 \\ - 2 \\ + 6 \\ - 3 \\ - 5 \\ - 4 \end{array}$$

$$\begin{array}{r} 3 \\ + 5 \\ 1 \\ 2 \\ 4 \\ = \end{array}$$

$$\begin{array}{r} = \\ = \\ = \\ = \\ = \end{array}$$

$$\begin{array}{r} + 2 \\ + 1 \\ + 3 \\ + 6 \\ + 5 \\ = 7 \end{array}$$

$$\begin{array}{r} 7 \\ - \\ 7 \\ - \\ 7 \\ - \\ 7 \\ = \end{array}$$

$$\begin{array}{r} 7 \\ - 2 \\ - 4 \\ - 1 \\ - 5 \\ - 3 \\ = 7 \end{array}$$

$$\begin{array}{r} + \\ + \\ + \\ + \\ + \\ = 7 \end{array}$$

$$\begin{array}{r} 3 \\ 2 \\ 6 \\ 5 \\ 1 \\ + \\ = 7 \end{array}$$

$$\begin{array}{r} + 6 \\ + 4 \\ + 2 \\ + 1 \\ + 5 \\ = 7 \end{array}$$

	1	
	2	
	3	
	4	
	5	
	6	
	7	

1	2	3	4	5	6	7
1	2	3	4	5	6	7

$$3 + 2 -$$

$$5 + 1 -$$

$$2 + 5 -$$

$$1 + 1 -$$

$$3 + 3 -$$

$$2 + 4 -$$

$$7 - 3 +$$

$$5 - 2 +$$

$$6 - 4 +$$

$$7 - 5 +$$

$$4 - 1 +$$

$$6 - 3 +$$

$$5 + - 7$$

$$1 + - 2$$

$$4 + - 5$$

$$3 + - 7$$

$$2 + - 6$$

$$5 + - 6$$

$$6 - 5 +$$

$$7 - 4 +$$

$$5 - 2 +$$

$$3 - 1 +$$

$$4 - 3 +$$

$$7 - 2 +$$

$$+ 4 - 7$$

$$+ 2 - 6$$

$$+ 3 - 5$$

$$+ 1 - 7$$

$$+ 2 - 4$$

$$+ 3 - 6$$

$$2 + 4 -$$

$$5 + 2 -$$

$$3 + 1 -$$

$$4 + 3 -$$

$$2 + 1 -$$

$$1 + 6 -$$

$5 +$	$- 6$	$7 -$	$1 +$	$7 -$	$+ 2$
$2 +$	$- 7$	$7 -$	$3 +$	$5 -$	$+ 3$
$3 +$	$- 5$	$5 -$	$2 +$	$6 -$	$+ 4$
$4 +$	$- 7$	$6 -$	$1 +$	$4 -$	$+ 1$
$3 +$	$- 4$	$7 -$	$5 +$	$7 -$	$+ 3$
$2 +$	$- 6$	$3 -$	$2 +$	$6 -$	$+ 3$

$3 + 4 =$	$+ 3 - 4$	$6 - 1 +$
$1 + 5 =$	$+ 1 - 5$	$5 - 3 +$
$2 + 3 =$	$+ 3 - 7$	$4 - 2 +$
$5 + 2 =$	$+ 4 - 6$	$1 - 4 +$
$1 + 4 =$	$+ 5 = 5$	$7 - 2 +$
$2 + 5 =$	$+ 1 - 7$	$6 - 0 +$

$7 -$	$+$	$3 +$	$- 6$	$2 -$	$1 +$
$3 -$	$+$	$2 +$	$- 5$	$5 -$	$3 +$
$5 -$	$+$	$4 +$	$- 7$	$7 -$	$1 +$
$6 -$	$+$	$1 +$	$- 4$	$4 -$	$2 +$
$7 -$	$+$	$2 +$	$- 3$	$6 -$	$1 +$
$4 -$	$+$	$3 +$	$- 5$	$5 -$	$4 +$

$7 - 1 -$	$6 - 2 -$	$5 - 1 -$
$7 - 5 -$	$6 - 3 -$	$5 - 3 -$
$7 - 4 -$	$6 - 4 -$	$5 - 5 -$
$7 - 2 -$	$6 - 6 -$	$5 - 4 -$
$7 - 6 -$	$6 - 5 -$	$5 - 2 -$
$7 - 3 -$	$6 - 1 -$	$5 - 0 -$

$4 - 2 -$	$7 - 3 -$	$6 - 1 -$
$4 - 4 -$	$6 - 5 -$	$7 - 4 -$
$4 - 1 -$	$4 - 1 -$	$5 - 1 -$
$4 - 0 -$	$7 - 2 -$	$4 - 2 -$
$4 - 3 -$	$5 - 3 -$	$3 - 1 -$
$4 - 2 -$	$6 - 2 -$	$7 - 7 -$

$5 - = 4$	$2 = 7 -$	$6 - 7 -$
$7 - = 3$	$5 = 6 -$	$2 - 5 -$
$6 - = 4$	$2 = 4 -$	$3 - 4 -$
$4 - = 2$	$3 = 7 -$	$1 - 6 -$
$7 - = 5$	$4 = 6 -$	$2 - 5 -$
$6 - = 3$	$1 = 3 -$	$4 = 7 -$

$$3 + 4 =$$

$$5 + 1 =$$

$$2 + 3 =$$

$$1 + 4 =$$

$$2 + 5 =$$

$$4 + 2 =$$

$$7 - 4 =$$

$$3 - 1 =$$

$$4 - 2 =$$

$$6 - 3 =$$

$$5 - 2 =$$

$$7 - 5 =$$

$$3 + - 5$$

$$2 + - 7$$

$$5 + - 6$$

$$1 + - 4$$

$$4 + - 6$$

$$2 + - 4$$

$$7 - - 2$$

$$5 - - 3$$

$$7 - - 4$$

$$6 - - 1$$

$$4 - - 3$$

$$7 - - 6$$

$$6 - 2 +$$

$$7 - 5 +$$

$$5 - 3 +$$

$$4 - 1 +$$

$$7 - 4 +$$

$$6 - 3 +$$

$$4 - 7 -$$

$$5 - 6 -$$

$$2 - 7 -$$

$$3 - 5 -$$

$$4 - 6 -$$

$$1 - 4 -$$

$$+ 2 - 6$$

$$+ 3 - 5$$

$$+ 1 - 3$$

$$+ 4 - 7$$

$$+ 1 - 6$$

$$+ 2 - 4$$

$$6 - 7 -$$

$$2 - 6 -$$

$$3 - 4 -$$

$$2 - 5 -$$

$$1 - 6 -$$

$$2 - 7 -$$

$$3 + 4 -$$

$$2 + 1 -$$

$$3 + 2 -$$

$$4 + 1 -$$

$$2 + 5 -$$

$$4 + 2 -$$

/	2	3	4	5	6	7
1	2	3	4	5	6	7

$6 - 3 =$	$4 + \quad = 6$	$2 = 3 -$
$4 - 2 =$	$1 + \quad = 7$	$5 = 7 -$
$7 - 5 =$	$5 + \quad = 7$	$4 = 6 -$
$6 - 4 =$	$3 + \quad = 4$	$3 = 7 -$
$2 - 1 =$	$2 + \quad = 6$	$1 = 5 -$

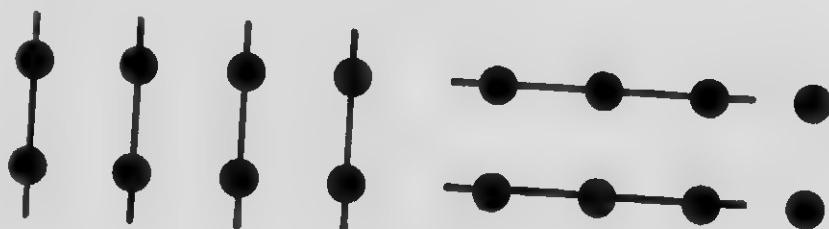
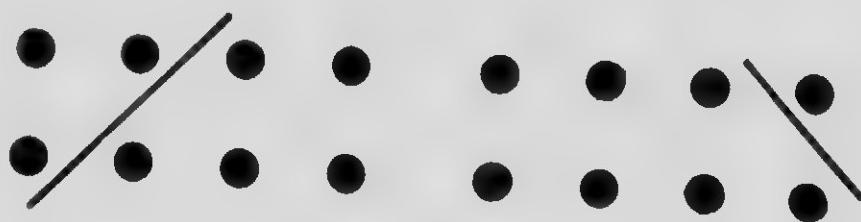
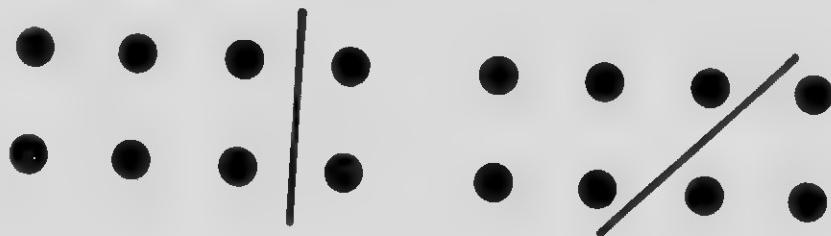
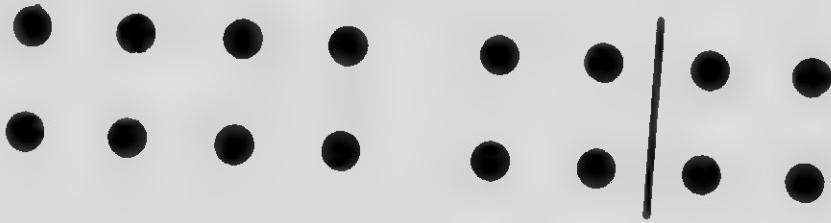
$7 = 2 +$	$4 + 3 =$	$7 - 2 =$
$6 = 1 +$	$2 + 1 =$	$7 - 4 =$
$4 = 3 +$	$1 + 5 =$	$4 - 1 =$
$5 = 2 +$	$5 + 2 =$	$6 - 3 =$
$7 = 4 +$	$3 + 3 =$	$5 - 2 =$

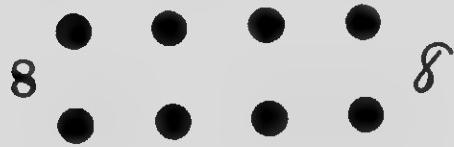
$4 + \quad = 7$	$2 = 7 -$	$+ 3 = 7$
$2 + \quad = 3$	$3 = 6 -$	$+ 1 = 7$
$1 + \quad = 6$	$2 = 4 -$	$+ 4 = 6$
$5 + \quad = 2$	$5 = 7 -$	$+ 1 = 6$
$4 + \quad = 6$	$4 = 7 -$	$+ 2 = 3$

$7 = 4 +$	$2 = 7 -$	$2 +$	$= 3$
$6 = 1 +$	$3 = 4 -$	$3 +$	$= 5$
$5 = 3 +$	$5 = 7 -$	$2 +$	$= 6$
$7 = 2 +$	$1 = 6 -$	$1 +$	$= 7$
$6 = 3 +$	$4 = 7 -$	$3 +$	$= 7$
$4 = 1 +$	$1 = 4 -$	$4 +$	$= 6$

$+ 3 = 6$	$7 - = 4$	$3 - 2 =$
$+ 1 = 5$	$5 - = 2$	$6 - 4 =$
$+ 1 = 4$	$6 - = 1$	$7 - 1 =$
$+ 2 = 5$	$4 - = 0$	$5 - 2 =$
$+ 4 = 6$	$3 - = 3$	$6 - 3 =$
$+ 5 = 7$	$7 - = 1$	$5 - 1 =$

$3 + 2 =$	$7 - 2 =$	$6 = 2 +$
$1 + 5 =$	$5 - 1 =$	$5 = 1 +$
$2 + 4 =$	$7 - 7 =$	$7 = 4 +$
$1 + 3 =$	$2 - 1 =$	$4 = 2 +$
$2 + 5 =$	$4 - 3 =$	$2 = 1 +$
$3 + 4 =$	$7 - 3 =$	$5 = 2 +$





$8 = 4 +$	$3 +$	$= 8$	$+ 6 = 8$
$8 = 2 +$	$5 +$	$= 8$	$+ 1 = 8$
$8 = 3 +$	$1 +$	$= 8$	$+ 3 = 8$
$8 = 6 +$	$6 +$	$= 8$	$+ 2 = 8$
$8 = 5 +$	$4 +$	$= 8$	$+ 7 = 8$
$8 - 1 =$	$8 = 2 +$	$8$	$= 5 2$
$8 - 4 =$	$8 = 5 +$	$8$	$= 5$
$8 - 6 =$	$8 = 7 +$	$8$	$= 7$
$8 - 7 =$	$8 = 4 +$	$8$	$= 3$
$8 - 5 =$	$8 = 6 +$	$8$	$= 6$
$4 = 8 -$	$2 +$	$= 8$	$+ 1 = 8$
$6 = 8 -$	$5 +$	$= 8$	$+ 5 = 8$
$1 = 8 -$	$7 +$	$= 8$	$+ 2 = 8$
$5 = 8 -$	$6 +$	$= 8$	$+ 6 = 8$
$2 = 8 -$	$3 +$	$= 8$	$+ 7 = 8$

$$\begin{array}{l} 5 + 2 = \\ 3 + 5 = \\ 1 + 5 = \\ 4 + 2 = \\ 1 + 3 = \\ 2 + 6 = \end{array}$$

$$\begin{array}{l} 3 + \\ 5 + \\ 1 + \\ 4 + \\ 2 + \\ 1 + \end{array} \begin{array}{l} 5 \\ 8 \\ 6 \\ 8 \\ 7 \\ 3 \end{array}$$

$$\begin{array}{l} 6 - \\ 5 - \\ 5 - \\ 8 - \\ 7 - \\ 6 - \end{array} \begin{array}{l} 4 \\ 2 \\ 1 \\ 3 \\ 4 \\ 1 \end{array}$$

$$\begin{array}{l} 8 - \\ 7 - \\ 5 - \\ 8 - \\ 6 - \\ 4 - \end{array} \begin{array}{l} = 2 \\ = 4 \\ = 3 \\ = 5 \\ = 3 \\ = 1 \end{array}$$

$$\begin{array}{l} 3 = \\ 4 = \\ 6 = \\ 2 = \\ 5 = \\ 3 = \end{array} \begin{array}{l} 7 - \\ 6 - \\ 8 - \\ 7 - \\ 8 - \\ 4 - \end{array}$$

$$\begin{array}{l} + 6 = \\ + 1 = \\ + 2 = \\ + 5 = \\ + 3 = \\ + 1 = \end{array} \begin{array}{l} 8 \\ 7 \\ 3 \\ 8 \\ 7 \\ 6 \end{array}$$

$$\begin{array}{l} 4 + 3 = \\ 2 + 6 = \\ 1 + 5 = \\ 3 + 2 = \\ 5 + 3 = \\ 1 + 7 = \end{array}$$

$$\begin{array}{l} 7 - 1 = \\ 4 - 3 = \\ 8 - 5 = \\ 6 - 2 = \\ 5 - 3 = \\ 7 - 4 = \end{array}$$

$$\begin{array}{l} 6 = \\ 8 = \\ 7 = \\ 5 = \\ 3 = \\ 7 = \end{array} \begin{array}{l} 2 \\ 6 \\ 3 \\ 1 \\ 5 \\ 2 \end{array}$$

$8 - 2 =$	$3 = 8 -$	$6 -$	$= 4$
$8 - 5 =$	$1 = 6 -$	$3 -$	$= 1$
$8 - 1 =$	$2 = 4 -$	$5 -$	$= 2$
$7 - 3 =$	$1 = 7 -$	$6 -$	$= 6$
$7 - 5 =$	$5 = 8 -$	$4 -$	$= 0$
$8 - 8 =$	$2 = 8 -$	$2 -$	$= 1$

$3 + 2 =$	$+ 3 = 8$	$4 +$	$= 5$
$5 + 3 =$	$+ 1 = 7$	$1 +$	$= 8$
$2 + 1 =$	$+ 2 = 4$	$2 +$	$= 5$
$6 + 2 =$	$+ 5 = 7$	$4 +$	$= 8$
$3 + 4 =$	$+ 1 = 6$	$3 +$	$= 7$
$5 + 0 =$	$+ 3 = 4$	$6 +$	$= 8$

$8 - 8 =$	$4 + 3 =$	$7 = 2 +$
$2 - 1 =$	$2 + 6 =$	$8 = 5 +$
$3 - 2 =$	$1 + 3 =$	$6 = 1 +$
$7 - 2 =$	$4 + 2 =$	$2 = 1 +$
$6 - 5 =$	$1 + 5 =$	$3 = 2 +$
$8 - 7 =$	$2 + 3 =$	$5 = 3 +$

$$\begin{array}{l} 5 + 2 = \\ 3 + 1 = \\ 7 + 0 = \\ 6 + 2 = \\ 1 + 4 = \\ 3 + 5 = \end{array}$$

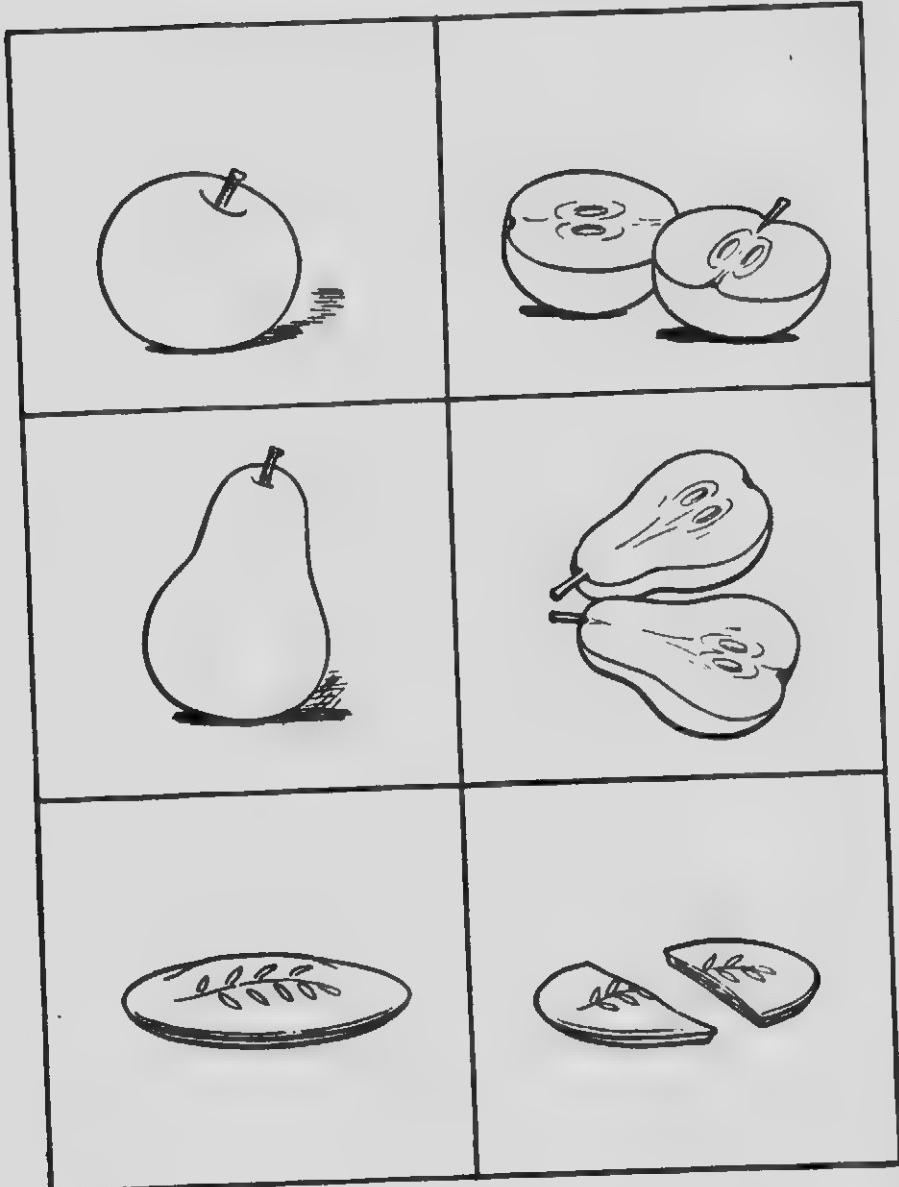
$$\begin{array}{lll} + 4 = 8 & 3 = 8 - \\ + 2 = 7 & 4 = 8 - \\ + 3 = 6 & 1 = 7 - \\ + 1 = 5 & 2 = 6 - \\ + 4 = 4 & 3 = 5 - \\ + 2 = 8 & 5 = 8 - \end{array}$$

$$\begin{array}{l} 7 - 1 = \\ 6 - 4 = \\ 8 - 3 = \\ 5 - 2 = \\ 6 - 1 = \\ 4 - 3 = \end{array}$$

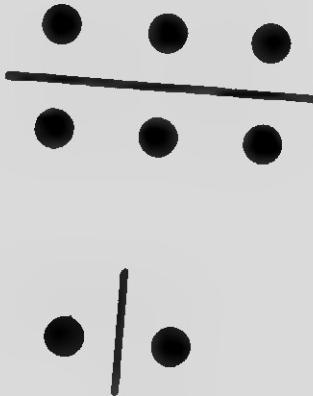
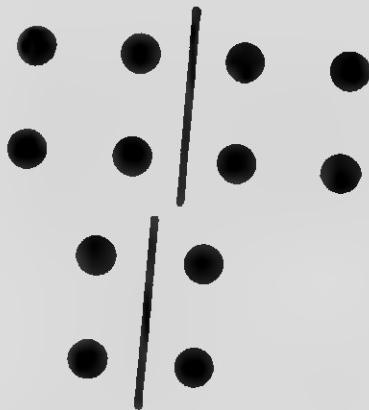
$$\begin{array}{lll} 8 = 2 + & 2 + & = 6 \\ 7 = 5 + & 1 + & = 5 \\ 2 = 1 + & 4 + & = 7 \\ 6 = 3 + & 1 + & = 8 \\ 8 = 1 + & 2 + & = 4 \\ 4 = 3 + & 3 + & = 5 \end{array}$$

$$\begin{array}{l} 8 - = 2 \\ 6 - = 3 \\ 7 - = 2 \\ 4 - = 1 \\ 3 - = 2 \\ 7 - = 4 \end{array}$$

$$\begin{array}{lll} 8 - 2 = & 2 - 2 = & \\ 7 - 3 = & 4 + 3 = & \\ 5 - 1 = & 7 = 2 + & \\ 6 - 4 = & 6 - = 3 & \\ 8 - 3 = & 8 + 3 = 8 & \\ 8 - 7 = & 8 = + 2 & \end{array}$$



8  
7  
5  
3  
2



One-half of 8 =  
One-half of 6 =  
One-half of 4 =  
One-half of 2 =

2 is one-half of  
4 is one-half of  
1 is one-half of  
3 is one-half of

$$\begin{array}{r} 3 + 3 = \\ - 2 = 5 \\ 8 - = 2 \\ + 4 = 6 \end{array}$$

$$\begin{array}{r} 3 + 4 = \\ 2 + 6 = \\ 1 + 2 = \\ 2 + 4 = \end{array}$$

$$\begin{array}{r} 7 = 8 - \\ 2 + = 3 \\ 3 - = 2 \\ - 6 = 1 \end{array}$$

$$\begin{array}{r} 7 = 4 + \\ 5 = + 4 \\ 3 = 8 - \\ 2 = 4 - \end{array}$$

$$\begin{array}{r} 7 = 1 + \\ 8 = 3 + \\ 4 = 1 + \\ 5 = 2 + \end{array}$$

$$\begin{array}{r} 3 = 5 - \\ - 4 = 2 \\ + 3 = 4 \\ 6 = 1 + \end{array}$$

1	2	3	4	5	6	7	8
1	2	3	4	5	6	7	8

$$3 + 4 = \quad 8 - 6 = \quad 4 = 7 -$$

$$2 + 6 = \quad 7 - 3 = \quad 2 = 6 -$$

$$1 + 1 = \quad 5 - 1 = \quad 3 = 8 -$$

$$3 + 5 = \quad 4 - 4 = \quad 1 = 6 -$$

$$7 + 1 = \quad 8 - 5 = \quad 5 = 7 -$$

$$2 + 3 = \quad 7 - 2 = \quad 3 = 4 -$$

$$4 + \quad = 8 \quad + 2 = 8 \quad 8 = 2 +$$

$$3 + \quad = 4 \quad + 1 = 7 \quad 7 = 5 +$$

$$5 + \quad = 8 \quad + 3 = 5 \quad 6 = 3 +$$

$$2 + \quad = 7 \quad + 4 = 6 \quad 5 = 2 +$$

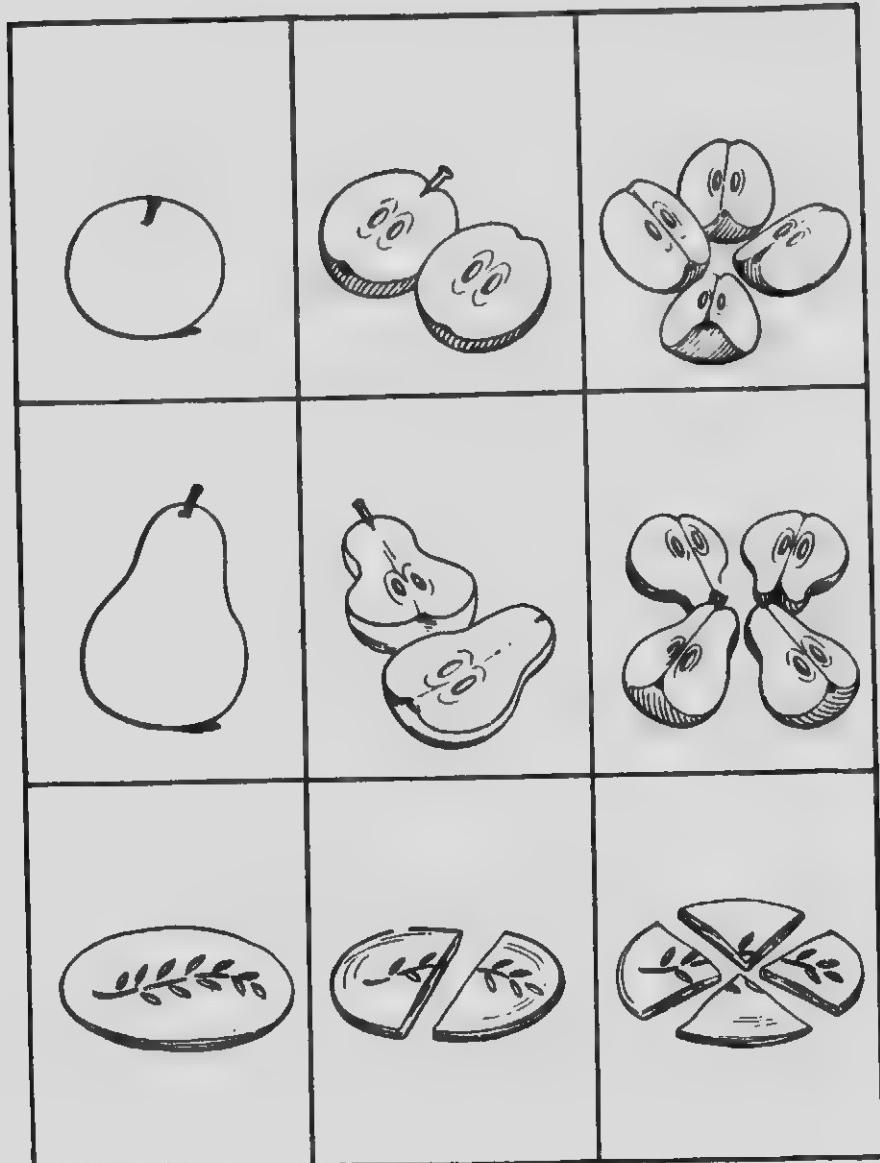
$$1 + \quad = 6 \quad + 5 = 8 \quad 8 = 3 +$$

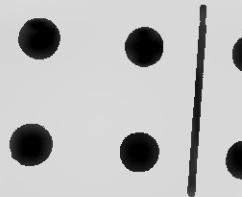
$$2 + \quad = 5 \quad + 1 = 5 \quad 7 = 4 +$$

$$\begin{array}{rcl}
 6 - & = 4 & 4 + 3 = \\
 2 - & = 2 & 2 + 1 = \\
 8 - & = 3 & 5 + 3 = \\
 7 - & = 4 & 2 + 4 = \\
 5 - & = 3 & 1 + 6 = \\
 6 - & = 1 & 3 + 3 =
 \end{array}
 \begin{array}{rcl}
 7 = 8 - \\
 2 = 6 - \\
 1 = 5 - \\
 3 = 5 - \\
 4 = 4 - \\
 2 = 8 -
 \end{array}$$

$$\begin{array}{rcl}
 8 = 5 + & 5 - 2 = & 3 + \\
 7 = 1 + & 4 - 3 = & 2 + \\
 2 = 1 + & 6 - 4 = & 1 + \\
 5 = 2 + & 7 - 3 = & 2 + \\
 7 = 3 + & 8 - 5 = & 3 + \\
 6 = 4 + & 6 - 1 = & 6 +
 \end{array}
 \begin{array}{rcl}
 & & = 7 \\
 & & = 6 \\
 & & = 1 \\
 & & = 8 \\
 & & = 8 \\
 & & = 7
 \end{array}$$

$$\begin{array}{rcl}
 8 - & = 2 & 3 = 7 - \\
 7 - & = 3 & 4 = 5 - \\
 8 - & = 5 & 2 = 8 - \\
 4 - & = 3 & 1 = 6 - \\
 6 - & = 2 & 4 = 6 - \\
 5 - & = 2 & 5 = 8 -
 \end{array}
 \begin{array}{rcl}
 7 = & & + 2 \\
 8 = & & + 6 \\
 5 = & & + 2 \\
 3 = & & + 1 \\
 2 = & & + 1 \\
 4 = & & + 3
 \end{array}$$

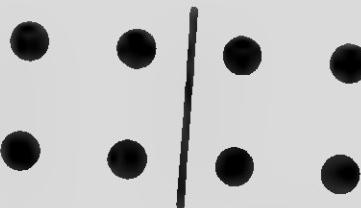




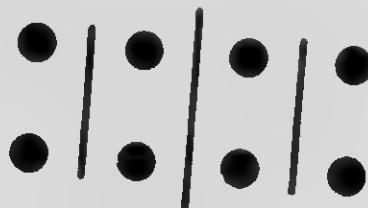
One-half of 8 is .....



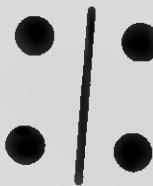
One-fourth of 8 is .....



4 is ..... of 8.



2 is one-fourth of .....



2 is ..... of 4.



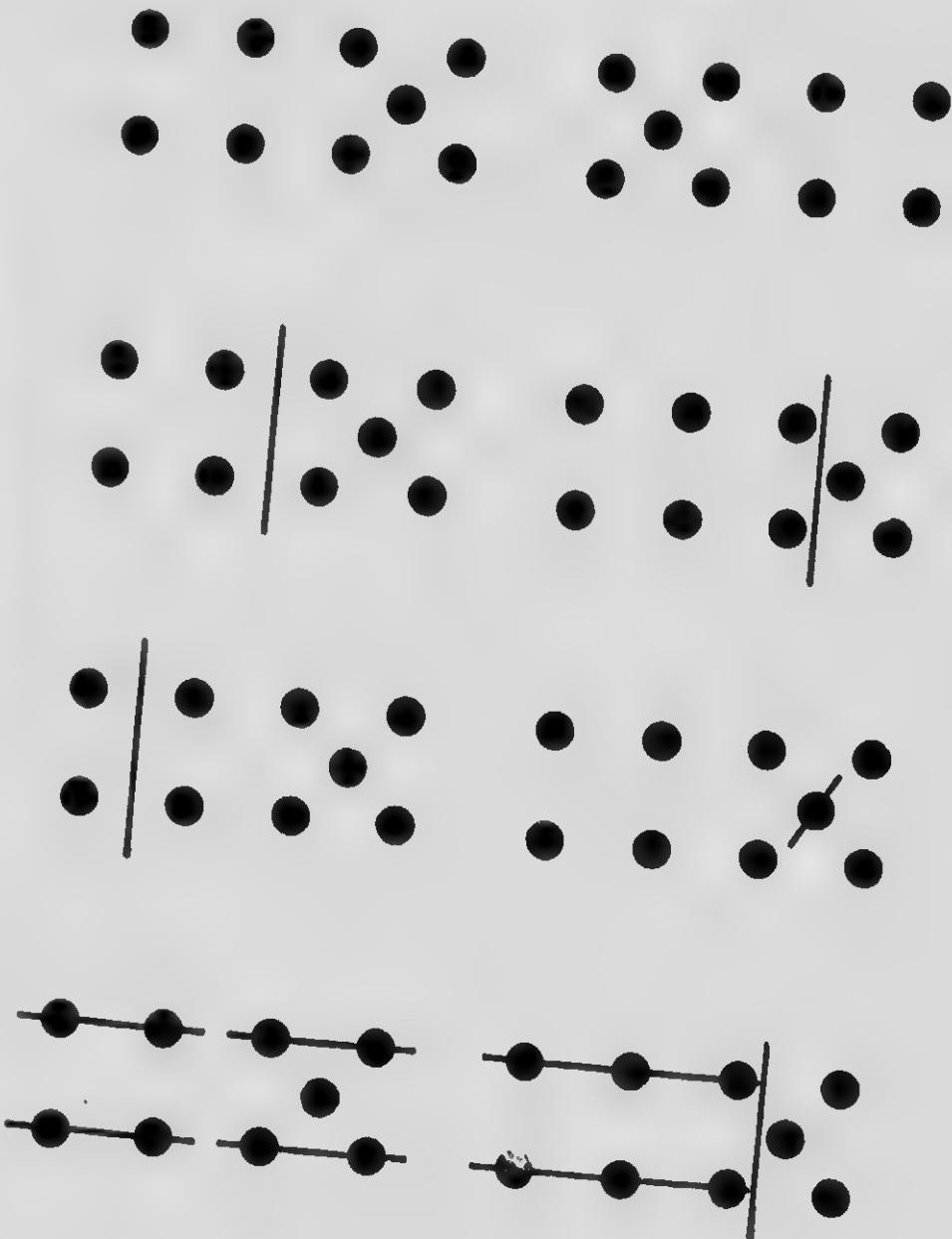
One-fourth of 4 is .....

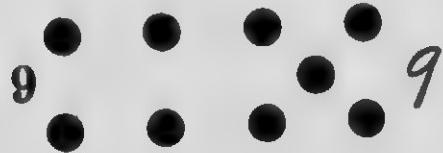
One-fourth of 8 is  
One-fourth of 4 is  
One-half of 2 is  
One-half of 8 is  
One-half of 6 is  
One-half of 4 is

2 is one-fourth of  
2 is one-half of  
3 is one-half of  
1 is one-half of  
1 is one-fourth of  
4 is one-half of

Add

2	3	6	1	5	3	2	4
4	5	2	3	2	4	3	4
-	-	-	-	-	-	-	-
1	2	3	4	1	3	6	3
4	2	2	2	7	5	1	4
-	-	-	-	-	-	-	-
4	1	2	1	3	5	2	3
3	6	4	2	3	3	5	2
-	-	-	-	-	-	-	-
2	3	3	2	4	1	2	5
3	4	1	5	4	1	6	3
-	-	-	-	-	-	-	-
2	2	2	3	1	5	2	2
3	2	4	1	3	2	3	3
1	4	-	-	-	-	-	-
-	-	-	-	-	-	-	-
2	2	5	1	2	3	4	1
2	2	1	2	4	1	2	2
2	3	-	-	-	-	-	-





$$\begin{array}{rcl}
 9 = 4 + & 9 - 8 = & 3 + \quad = 9 \\
 9 = 3 + & 9 - 5 = & 7 + \quad = 9 \\
 9 = 1 + & 9 - 6 = & 1 + \quad = 9 \\
 9 = 2 + & 9 - 2 = & 5 + \quad = 9 \\
 9 = 5 + & 9 - 4 = & 2 + \quad = 9
 \end{array}$$

$$\begin{array}{rcl}
 + 2 = 9 & 9 - \quad = 4 & 9 = 3 + \\
 + 6 = 9 & 9 - \quad = 7 & 9 = 1 + \\
 + 3 = 9 & 9 - \quad = 0 & 9 = 4 + \\
 + 3 = 9 & 9 - \quad = 1 & 9 = 7 + \\
 + 5 = 9 & 9 - \quad = 3 & 9 = 6 +
 \end{array}$$

$$\begin{array}{rcl}
 4 = 9 - & 3 + \quad = 9 & 9 = \quad + 2 \\
 2 = 9 - & 7 + \quad = 9 & 9 = \quad + 5 \\
 8 = 9 - & 1 + \quad = 9 & 9 = \quad + 6 \\
 5 = 9 - & 5 + \quad = 9 & 9 = \quad + 7 \\
 3 = 9 - & 8 + \quad = 9 & 9 = \quad + 1
 \end{array}$$

$$\begin{array}{l} 9 - 4 = \\ 8 - 2 = \\ 7 - 5 = \\ 9 - 6 = \\ 8 - 3 = \\ 9 - 5 = \end{array}$$

$$\begin{array}{l} 3 = 7 - \\ 6 = 9 - \\ 1 = 3 - \\ 4 = 9 - \\ 3 = 8 - \\ 2 = 5 - \end{array}$$

$$\begin{array}{l} 4 + \\ 3 + \\ 1 + \\ 6 + \\ 2 + \\ 3 + \end{array} \quad \begin{array}{l} = 9 \\ = 9 \\ = 6 \\ = 7 \end{array}$$

$$\begin{array}{l} + 2 = 9 \\ + 3 = 8 \\ + 1 = 6 \\ + 2 = 8 \\ + 4 = 7 \\ + 6 = 9 \end{array}$$

$$\begin{array}{l} 8 - 1 = 7 \\ 7 - 1 = 6 \\ 9 - 1 = 8 \\ 5 - 1 = 4 \\ 9 - 1 = 8 \\ 8 - 1 = 7 \end{array}$$

$$\begin{array}{l} 3 = 9 - \\ 2 = 6 - \\ 1 = 9 - \\ 5 = 8 - \\ 4 = 6 - \\ 7 = 9 - \end{array}$$

$$\begin{array}{l} 9 = 6 + \\ 5 = 2 + \\ 7 = 3 + \\ 9 = 1 + \\ 4 = 2 + \\ 9 = 4 + \end{array}$$

$$\begin{array}{l} 3 + 2 = \\ 6 + 3 = \\ 2 + 1 = \\ 5 + 3 = \\ 2 + 4 = \\ 1 + 7 = \end{array}$$

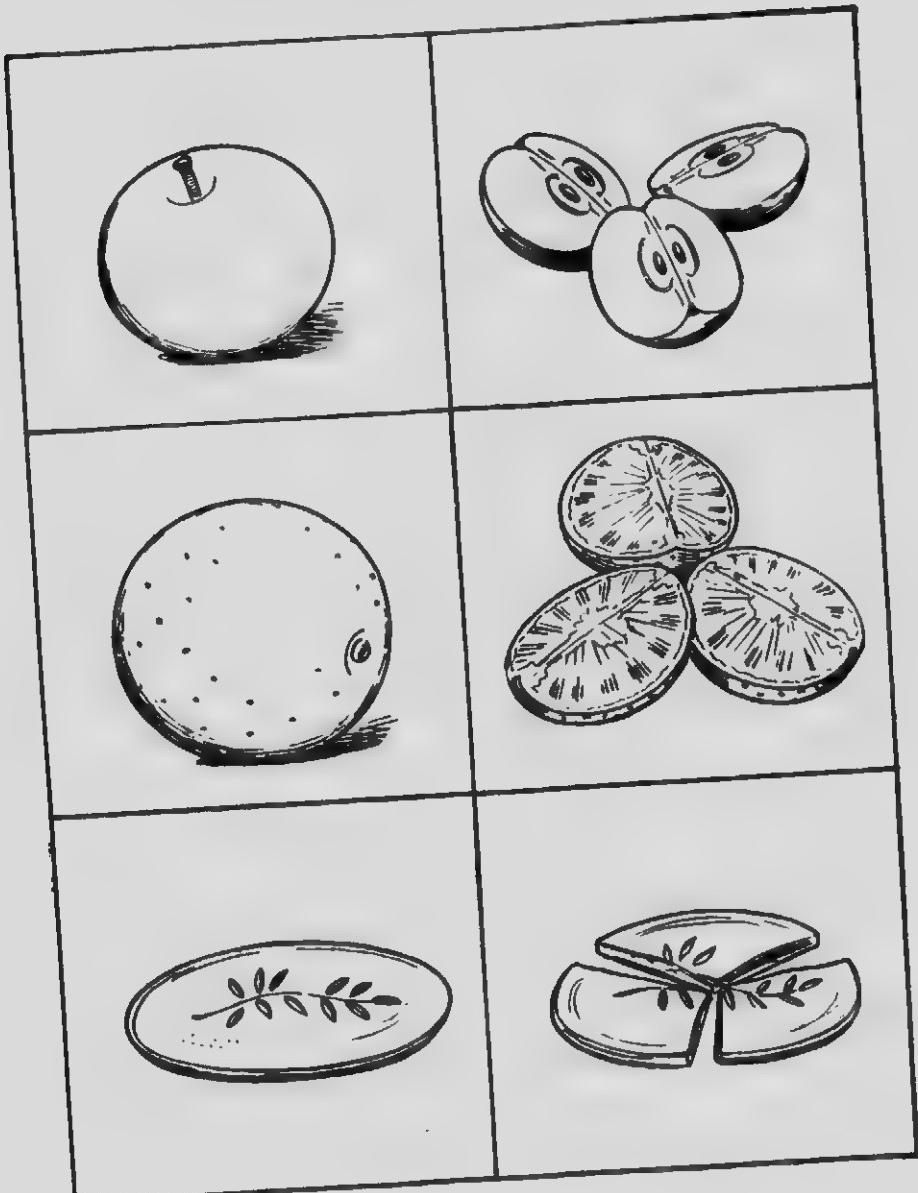
$$\begin{array}{l} 9 - 2 = \\ 8 - 4 = \\ 6 - 1 = \\ 3 - 2 = \\ 9 - 6 = \\ 8 - 5 = \end{array}$$

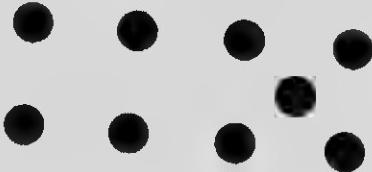
$9 -$	$= 3$	$+ 3 = 8$	$8 =$	$+ 2$
$7 -$	$= 2$	$+ 2 = 5$	$7 =$	$+ 1$
$4 -$	$= 1$	$+ 6 = 9$	$6 =$	$+ 4$
$8 -$	$= 4$	$+ 1 = 7$	$9 =$	$+ 5$
$9 -$	$= 2$	$+ 3 = 7$	$8 =$	$+ 3$
$6 -$	$= 1$	$+ 5 = 9$	$9 =$	$+ 1$

$9 = 4 +$	$3 = 5 -$	$2 +$	$= 6$
$8 = 2 +$	$7 = 9 -$	$3 +$	$= 9$
$7 = 5 +$	$2 = 8 -$	$5 +$	$= 8$
$9 = 1 +$	$1 = 5 -$	$1 +$	$= 9$
$8 = 3 +$	$3 = 4 -$	$5 +$	$= 7$
$6 = 1 +$	$5 = 9 -$	$4 +$	$= 7$

$3 =$	$- 4$	$6 =$	$- 3$	$2 =$	$- 4$
$5 =$	$- 3$	$3 =$	$- 1$	$1 =$	$- 7$
$2 =$	$- 2$	$7 =$	$- 2$	$5 =$	$- 4$
$1 =$	$- 3$	$2 =$	$- 1$	$4 =$	$- 4$
$4 =$	$- 5$	$1 =$	$- 5$	$3 =$	$- 5$
$3 =$	$- 2$	$4 =$	$- 3$	$6 =$	$- 3$

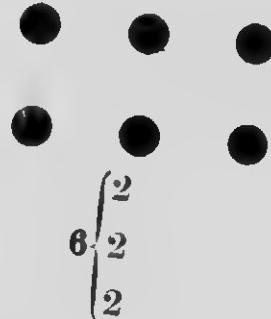






$$9 \overline{)3} \\ | \\ 3$$

3 is one-third of  
One-third of 9 is  
Two-thirds of 9 is



$$6 \overline{)2} \\ | \\ 2$$

2 is one-third of  
One-third of 6 is  
Two-thirds of 6 is



$$3 \left\{ \begin{matrix} 1 \\ 1 \\ 1 \end{matrix} \right.$$

One is one-third of  
One-third of 3 is

One-third of 6 is  
One-third of 9 is  
One-third of 3 is  
3 is ..... of 9

2 is one-third of  
1 is one-third of  
3 is one-third of  
2 is ..... 6

1 2 3 4 5 6 7 8 9  
1 2 3 4 5 6 7 8 9

## PUBLIC SCHOOL ARITHMETIC.

One-third of 9 is  
 One-half of 6 is  
 One-fourth of 8 is  
 One-half of 4 is  
 One-third of 6 is  
 One fourth of 4 is

2 is one-half of  
 2 is one-fourth of  
 2 is one-third of  
 3 is one-half of  
 3 is one-third of  
 1 is one-half of

## Add

3	4	5	2	1	4	1	2	3	4
1	3	2	1	-	2	3	1	3	2
2	2	-	2	1	7	3	5	2	4
-	-	-	3	2	1	3	2	3	1
2	3	2	3	2	1	2	5	1	3
3	4	5	2	1	1	2	3	2	4
-	-	-	-	-	-	-	-	-	-
5	2	2	5	1	4	2	5	3	1
3	4	3	1	1	2	3	2	2	3
1	-	-	-	-	-	-	-	-	1
-	-	-	-	-	-	-	-	-	-
2	2	3	1	1	2	1	5	2	3
2	2	3	1	-	4	3	2	1	1

$$9 - 1 - 1 =$$

$$9 - 2 - 3 =$$

$$9 - 4 - 2 =$$

$$9 - 3 - 4 =$$

$$9 - 5 - 3 =$$

$$9 - 1 - 4 =$$

$$9 - 2 - 5 =$$

$$8 - 1 - 3 =$$

$$9 - 5 - 4 =$$

$$9 - 3 - 1 =$$

$$8 - 2 - 2 =$$

$$7 - 4 - 1 =$$

$$7 - 2 - 3 =$$

$$8 - 3 - 4 =$$

$$9 - 1 - 6 =$$

$$8 - 2 - 1 =$$

$$7 - 3 - 3 =$$

$$9 - 2 - 2 =$$

$$9 = 2 + 3 +$$

$$8 = 1 + 5 +$$

$$9 = 3 + 4 +$$

$$7 = 1 + 1 +$$

$$8 = 2 + 3 +$$

$$6 = 1 + 2 +$$

$$8 - 1 - 1 =$$

$$9 - 2 - 3 =$$

$$7 - 1 - 4 =$$

$$9 - 5 - 2 =$$

$$8 - 1 - 3 =$$

$$9 - 1 - 2 =$$

$$3 + 5 + = 9$$

$$2 + 1 + = 8$$

$$1 + 3 + = 7$$

$$2 + 4 + = 9$$

$$2 + 5 + = 9$$

$$3 + 2 + = 8$$

$+ 1 + = 9$	$8 - 1 - 3 =$
$2 + 3 + = 8$	$7 - 2 - 4 =$
$1 + 1 + = 6$	$9 - 3 - 2 =$
$4 + 1 + = 9$	$8 - 1 - 5 =$
$2 + 4 + = 8$	$6 - 2 - 2 =$
$1 + 2 + = 7$	$9 - 3 - 1 =$
$9 = 2 + 3 +$	$9 - 2 - 4 =$
$8 = 5 + 3 +$	$8 - 1 - 3 =$
$7 = 1 + 2 +$	$6 - 2 - 3 =$
$9 = 5 + 3 +$	$7 - 4 - 2 =$
$6 = 1 + 2 +$	$9 - 4 - 3 =$
$5 = 2 + 1 +$	$8 - 5 - 2 =$
$1 + 3 + 2 =$	$8 = + 2 + 2$
$4 + 2 + 3 =$	$9 = + 1 + 2$
$3 + 5 + 1 =$	$7 = + 3 + 4$
$2 + 3 + 3 =$	$6 = + 1 + 1$
$4 + 1 + 2 =$	$9 = + 2 + 3$
$5 + 1 + 3 =$	$8 = + 3 + 2$

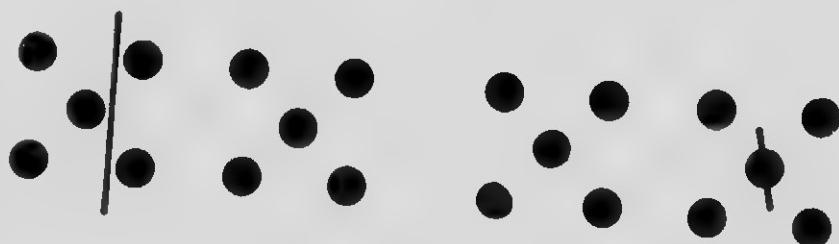
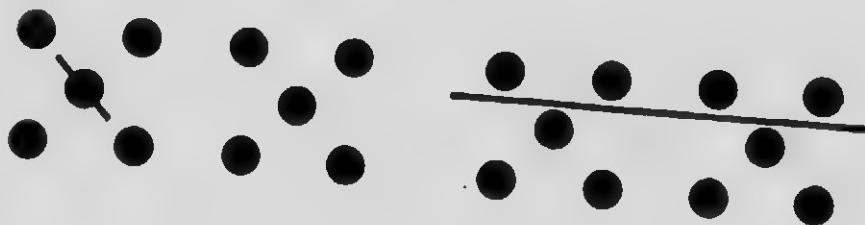
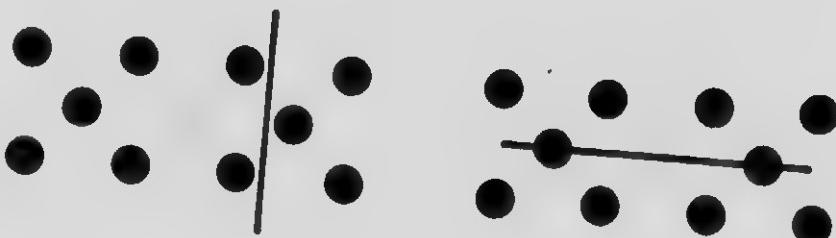
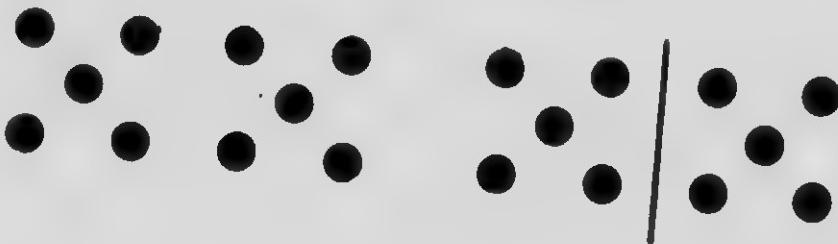
Add

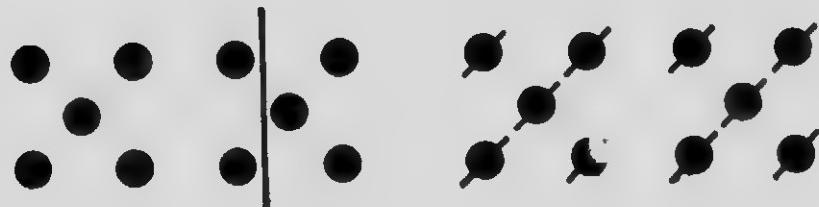
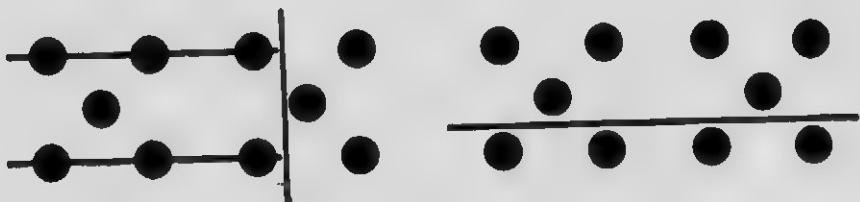
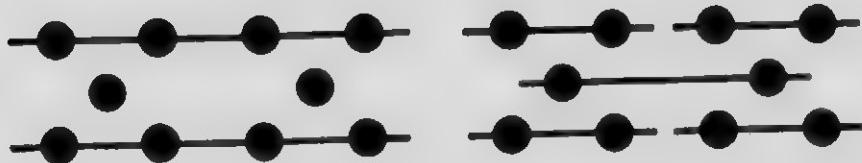
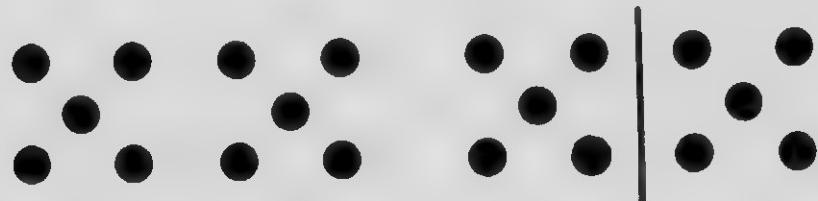
5	2	1	-	3	3	3	-	3	4	2	-	4	1	4	-	1	4	2	1	-
4	1	3	-	3	2	4	-	2	2	1	-	5	1	3	-	2	1	4	2	-
4	3	2	-	2	5	2	-	3	1	3	-	1	5	2	-	2	1	3	1	-
1	5	1	-	3	1	3	-	2	3	4	-	1	3	1	-	4	1	2	1	-
2	4	3	-	4	2	2	-	3	5	1	-	6	1	2	-	3	2	2	1	-
2	5	2	-	5	3	1	-	2	2	3	-	1	4	3	-	2	2	2	3	-
5	1	1	-	3	2	3	-	4	1	1	-	7	1	1	-	3	1	1	2	-

$3 +$	$+ 1 = 9$	$7 - 2 - 3 =$
$2 +$	$+ 5 = 8$	$8 - 1 - 2 =$
$1 +$	$+ 3 = 7$	$9 - 3 - 4 =$
$4 +$	$+ 2 = 9$	$8 - 4 - 1 =$
$2 +$	$+ 1 = 8$	$9 - 2 - 5 =$
$3 +$	$+ 4 = 9$	$6 - 1 - 1 =$

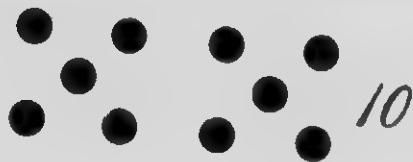
$2 + 4 + 1 =$	$9 = 3 + 2 +$
$3 + 2 + 2 =$	$8 = 1 + 3 +$
$1 + 4 + 3 =$	$7 = 4 + 2 +$
$2 + 5 + 2 =$	$6 = 2 + 1 +$
$1 + 2 + 3 =$	$5 = 3 + 2 +$
$3 + 4 + 2 =$	$9 = 3 + 5 +$

$8 =$	$+ 2 + 4$	$9 - 4 + 2 =$
$9 =$	$+ 1 + 1$	$8 - 2 + 3 =$
$7 =$	$+ 3 + 4$	$7 - 5 + 4 =$
$9 =$	$+ 1 + 4$	$6 - 2 + 5 =$
$8 =$	$+ 2 + 5$	$9 - 6 + 4 =$
$6 =$	$+ 3 + 2$	$8 - 5 + 2 =$





16  
16  
10  
10  
10



$$\begin{array}{l}
 10 = 5 + \quad 4 + = 10 \quad 10 - 2 = \\
 10 = 8 + \quad 5 + = 10 \quad 10 - 7 = \\
 10 = 6 + \quad 2 + = 10 \quad 10 - 9 = \\
 10 = 3 + \quad 1 + = 10 \quad 10 - 6 = \\
 10 = 2 + \quad 7 + = 10 \quad 10 - 3 =
 \end{array}$$

$$\begin{array}{l}
 3 = 10 - \quad + 2 = 10 \quad 10 - = 4 \\
 5 = 10 - \quad + 7 = 10 \quad 10 - = 9 \\
 7 = 10 - \quad + 9 = 10 \quad 10 - = 2 \\
 9 = 10 - \quad + 4 = 10 \quad 10 - = 6 \\
 4 = 10 - \quad + 5 = 10 \quad 10 - = 3
 \end{array}$$

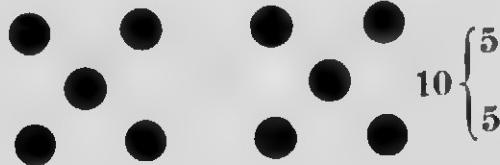
$$\begin{array}{lll}
 10 = 2 + & 10 - 6 = & 3 + = 10 \\
 10 = 7 + & 10 - 9 = & 9 + = 10 \\
 10 = 1 + & 10 - 3 = & 4 + = 10 \\
 10 = 4 + & 10 - 5 = & 2 + = 10 \\
 10 = 3 + & 10 - 8 = & 7 + = 10
 \end{array}$$

$3 + 6 =$	$8 - 6 =$	$4 = 10 -$
$5 + 2 =$	$10 - 4 =$	$2 = 7 -$
$2 + 8 =$	$9 - 2 =$	$5 = 8 -$
$6 + 4 =$	$10 - 7 =$	$6 = 9 -$
$3 + 2 =$	$7 - 3 =$	$3 = 10 -$
$2 + 7 =$	$9 - 1 =$	$2 = 8 -$

$- 3 = 6$	$- 1 = 4$	$3 = 10 -$
$- 1 = 5$	$- 2 = 6$	$7 = 9 -$
$- 4 = 3$	$- 4 = 5$	$2 = 10 -$
$- 6 = 4$	$- 5 = 5$	$5 = 8 -$
$- 2 = 5$	$- 3 = 4$	$3 = 7 -$
$- 3 = 7$	$- 4 = 2$	$4 = 10 -$

$7 - = 2$	$- 3 = 3$	$+ 6 = 10$
$10 - = 3$	$- 2 = 8$	$+ 2 = 9$
$9 - = 4$	$- 4 = 4$	$+ 5 = 8$
$10 - = 6$	$- 1 = 0$	$+ 4 = 7$
$6 - = 1$	$- 5 = 4$	$+ 5 = 9$
$8 - = 3$	$- 3 = 6$	$+ 2 = 6$





5 is what part of 10?  
One-half of 10 is  
4 is one-half of  
5 is one-half of  
2 is one-half of  
1 is one-half of

3 is one-half of  
3 is one-third of  
What part of 10 is 5?  
What part of 8 is 2?  
What part of 6 is 2?  
What part of 9 is 3?

One-third of 6 is  
Two-thirds of 6 is  
One fourth of 8 is  
Three-fourths of 8 is  
3 is what part of 9?  
1 is what part of 3?

4 is ..... of 8.  
3 is ..... of 9.  
2 is ..... of 6.  
5 is ..... of 10.  
1 is ..... of 4.  
2 is ..... of 4.

10 - one-half of 8 =  
10 - one-third of 9 =  
10 - one-fourth of 8 =  
10 - one-half of 10 =

One-half of 8 + 3 =  
One-third of 9 + 5 =  
One-fourth of 4 + 7 =  
One-half of 6 + 7 =

$$\begin{array}{l} 10 - 2 - 3 = \\ 10 - 6 - 1 = \\ 10 - 4 - 4 = \\ 10 - 3 - 5 = \\ 10 - 1 - 1 = \\ 10 - 2 - 2 = \end{array}$$

$$\begin{array}{l} 10 = 2 + 4 + \\ 10 = 3 + 6 + \\ 10 = 4 + 3 + \\ 10 = 1 + 5 + \\ 10 = 2 + 3 + \\ 10 = 1 + 8 + \end{array}$$

$$\begin{array}{l} 3 + 3 + = 10 \\ 6 + 1 + = 10 \\ 2 + 4 + = 10 \\ 3 + 5 + = 10 \\ 1 + 2 + = 10 \\ 2 + 5 + = 10 \end{array}$$

$$\begin{array}{l} 10 - 4 - 2 = \\ 10 - 3 - 1 = \\ 10 - 2 - 5 = \\ 10 - 1 - 5 = \\ 10 - 4 - 5 = \\ 10 - 6 - 2 = \end{array}$$

$$\begin{array}{l} 10 = 3 + + 3 \\ 10 = 2 + + 1 \\ 10 = 5 + + 4 \\ 10 = 4 + + 4 \\ 10 = 2 + + 5 \\ 10 = 3 + + 4 \end{array}$$

$$\begin{array}{l} 10 = + 2 + 3 \\ 10 = + 1 + 5 \\ 10 = + 4 + 3 \\ 10 = + 2 + 6 \\ 10 = + 1 + 2 \\ 10 = + 2 + 2 \end{array}$$

## Subtract

$$\begin{array}{rcl} 3 + 4 + 2 & = & \\ 5 + 2 + 1 & = & \\ 3 + 5 + 2 & = & \\ 4 + 4 + 2 & = & \\ 1 + 2 + 6 & = & \\ 2 + 3 + 4 & = & \end{array}$$

$$\begin{array}{rcl} 3 + 2 + & = & 9 \\ 2 + 4 + & = & 8 \\ 4 + 1 + & = & 10 \\ 2 + 3 + & = & 7 \\ 4 + 3 + & = & 10 \\ 1 + 5 + & = & 10 \end{array}$$

$$\begin{array}{rcl} 10 - 2 - 3 & = & \\ 10 - 1 - 2 & = & \\ 10 - 2 - 2 & = & \\ 10 - 4 - 3 & = & \\ 10 - 5 - 3 & = & \\ 10 - 4 - 5 & = & \end{array}$$

$$\begin{array}{rcl} 8 - 1 - 2 & = & \\ 9 - 3 - 4 & = & \\ 10 - 2 - 6 & = & \\ 7 - 3 - 2 & = & \\ 6 - 1 - 1 & = & \\ 10 - 4 - 3 & = & \end{array}$$

$$\begin{array}{rcl} 10 = 3 + & + 1 & \\ 9 = 2 + & + 5 & \\ 7 = 1 + & + 1 & \\ 8 = 2 + & + 3 & \\ 10 = 5 + & + 2 & \\ 9 = 3 + & + 1 & \end{array}$$

$$\begin{array}{rcl} 8 & = & + 2 + 3 \\ 7 & = & + 1 + 2 \\ 10 & = & + 3 + 5 \\ 9 & = & + 1 + 6 \\ 8 & = & + 4 + 1 \\ 9 & = & + 2 + 2 \end{array}$$

$$\begin{array}{l} 3 = 10 - 4 - \\ 2 = 9 - 1 - \\ 5 = 8 - 2 - \\ 4 = 10 - 3 - \\ 1 = 7 - 1 - \\ 4 = 9 - 3 - \end{array}$$

$$\begin{array}{rcl} 8 - 2 - & = 4 \\ 9 - 3 - & = 2 \\ 7 - 1 - & = 3 \\ 10 - 3 - & = 4 \\ 8 - 3 - & = 3 \\ 9 - 2 - & = 6 \end{array}$$

$$\begin{array}{l} 10 - 6 + 2 = \\ 8 - 5 + 4 = \\ 6 - 2 + 5 = \\ 9 - 3 + 4 = \\ 5 - 4 + 7 = \\ 10 - 8 + 6 = \end{array}$$

$$\begin{array}{l} 5 = 10 - 2 - \\ 2 = 9 - 3 - \\ 3 = 8 - 2 - \\ 1 = 6 - 4 - \\ 2 = 10 - 7 - \\ 4 = 9 - 1 - \end{array}$$

$$\begin{array}{l} 2 + 4 + 4 = \\ 1 + 3 + 3 = \\ 2 + 5 + 3 = \\ 3 + 2 + 3 = \\ 4 + 4 + 2 = \\ 2 + 3 + 3 = \end{array}$$

$$\begin{array}{l} 7 + 2 - 3 = \\ 8 + 2 - 7 = \\ 3 + 4 - 5 = \\ 6 + 3 - 7 = \\ 3 + 7 - 4 = \\ 1 + 8 - 6 = \end{array}$$

3  
2  
4  
3  
2  
2

$$\text{times } 4 = 8$$

$$\text{times } 2 = 10$$

$$\text{times } 1 = 7$$

$$\text{times } 3 = 9$$

$$\text{times } 5 = 10$$

$$\text{times } 3 = 6$$

$$\text{times } 2 = 6$$

$$\text{times } 1 = 8$$

$$\text{times } 9 = 9$$

$$\text{times } 2 = 10$$

$$\text{times } 2 = 4$$

$$\text{times } 2 = 8$$

$$\text{times } 1 = 4$$

$$\text{times } 2 = 6$$

$$\text{times } 5 = 5$$

$$\text{times } 1 = 7$$

$$\text{times } 3 = 3$$

$$\text{times } 4 = 4$$

$$\text{times } 7 = 7$$

$$\text{times } 6 = 6$$

$$\text{times } 2 = 4$$

$$\text{times } 1 = 5$$

$$\text{times } 1 = 3$$

$$\text{times } 2 = 2$$

$$3 \text{ times } 2 =$$

$$2 \text{ times } 5 =$$

$$4 \text{ times } 2 =$$

$$3 \text{ times } 3 =$$

$$2 \text{ times } 1 =$$

$$2 \text{ times } 4 =$$

$$4 \text{ times } 1 =$$

$$2 \text{ times } 3 =$$

$$7 \text{ times } 1 =$$

$$5 \text{ times } 2 =$$

$$8 \text{ times } 1 =$$

$$2 \text{ times } 2 =$$

5 times 1 =  
 1 times 7 =  
 2 times 3 =  
 9 times 1 =  
 4 times 2 =  
 1 times 8 =

3 times 2 =  
 10 times 1 =  
 5 times 2 =  
 2 times 1 =  
 1 times 3 =  
 3 times 3 =

8 = 2 times  
 5 = 5 times  
 6 = 3 times  
 9 = 3 times  
 10 = 2 times  
 8 = 8 times

4 = 2 times  
 10 = 5 times  
 9 = 9 times  
 6 = 2 times  
 7 = 7 times  
 10 = 1 times

4 times = 8  
 2 times = 10  
 9 times = 9  
 3 times = 6  
 2 times = 6  
 5 times = 10

3 times = 9  
 2 times = 8  
 7 times = 7  
 4 times = 8  
 3 times = 3  
 8 times = 8

$$\begin{array}{l} 4 t 2 = \\ 3 t 3 = \\ 2 t 5 = \\ 4 t 1 = \\ 2 t 2 = \\ 3 t 2 = \end{array}$$

$$\begin{array}{ll} t 2 = & 4 \\ t 4 = & 8 \\ t 3 = & 9 \\ t 5 = & 10 \\ t 1 = & 7 \\ t 2 = & 10 \end{array}$$

$$\begin{array}{ll} t 2 = & 6 \\ t 2 = & 8 \\ t 1 = & 3 \\ t 2 = & 4 \\ t 1 = & 5 \\ t 10 = & 10 \end{array}$$

$$\begin{array}{l} 9 = t 3 \\ 8 = t 2 \\ 6 = t 3 \\ 10 = t 5 \\ 4 = t 2 \\ 6 = t 2 \end{array}$$

$$\begin{array}{ll} 4 = t 1 \\ 5 = t 5 \\ 8 = t 4 \\ 10 = t 2 \\ 9 = t 3 \\ 7 = t 1 \end{array}$$

$$\begin{array}{l} 9 = 3 t \\ 10 = 5 t \\ 4 = 2 t \\ 6 = 3 t \\ 8 = 4 t \\ 10 = 2 t \end{array}$$

$$\begin{array}{l} 3 t = 9 \\ 2 t = 8 \\ 4 t = 8 \\ 7 t = 7 \\ 3 t = 6 \\ 8 t = 8 \end{array}$$

$$\begin{array}{ll} 2 t = 6 \\ 3 t = 6 \\ 1 t = 5 \\ 8 t = 8 \\ 5 t = 10 \\ 4 t = 4 \end{array}$$

$$\begin{array}{l} 5 t 2 = \\ 3 t 1 = \\ 2 t 4 = \\ 7 t 1 = \\ 2 t 5 = \\ 2 t 3 = \end{array}$$

One-half of 10 =	2 is one-third of
One-third of 9 =	4 is one-half of
One-fourth of 8 =	5 is one-half of
One-half of 4 =	2 is one-fourth of
One-half of 6 =	1 is one-third of
One-third of 6 =	1 is one-fourth of

$t 3 = 6$	$9 = t 1$	$2 t 2 =$	$3 t 2 =$
$t 4 = 8$	$10 = t 5$	$3 t 3 =$	$4 t 1 =$
$t 2 = 4$	$7 = t 7$	$4 t 2 =$	$7 t 1 =$
$t 3 = 9$	$4 = t 2$	$5 t 1 =$	$1 t 9 =$
$t 1 = 7$	$6 = t 2$	$2 t 4 =$	$3 t 1 =$
$t 2 = 10$	$8 = t 4$	$1 t 6 =$	$2 t 5 =$

$8 = 2 t$	$t 2 = 6$	$10 = 1 t$	$8 t = 8$
$9 = 3 t$	$t 9 = 9$	$7 = 7 t$	$3 t = 3$
$10 = 2 t$	$t 1 = 8$	$6 = 2 t$	$4 t = 8$
$4 = 4 t$	$t 2 = 8$	$9 = 9 t$	$7 t = 7$
$6 = 2 t$	$t 2 = 4$	$10 = 5 t$	$2 t = 8$
$8 = 4 t$	$t 2 = 10$	$4 = 2 t$	$3 t = 9$

$10 - 2 t 3 =$	$9 - 2 t 4 =$	$5 t 2 - 6 =$
$8 - 3 t 2 =$	$10 - 3 t 3 =$	$2 t 4 - 3 =$
$9 - 2 t 2 =$	$8 - 1 t 2 =$	$3 t 3 - 4 =$
$10 - 4 t 2 =$	$10 - 2 t 5 =$	$2 t 5 - 8 =$
$7 - 5 t 1 =$	$10 - 4 t 2 =$	$3 t 2 - 5 =$
$9 - 3 t 3 =$	$9 - 1 t 7 =$	$4 t 2 - 5 =$

1. Tom had 10 apples. He gave his sister 3 and his mother 4. How many had he left?
2. Jane had 10 dolls. She lost one and gave Mary 5. How many had she left?
3. Fred had 6 marbles. He bought 4 more. He then lost 2. How many had he left?
4. Mary's mother gave her 3 apples. Jennie gave her 4, and Tom gave her 2. How many did she then have?

$3 + 4 + 2 =$	$7 + 2 - 3 =$	$3 + 2 + \quad = 9$
$6 + 3 + 1 =$	$6 + 4 - 2 =$	$2 + 1 + \quad = 10$
$2 + 1 + 4 =$	$1 + 7 - 3 =$	$1 + 5 + \quad = 9$
$3 + 5 + 2 =$	$4 + 6 - 7 =$	$4 + 3 + \quad = 8$
$1 + 6 + 2 =$	$3 + 5 - 2 =$	$1 + 1 + \quad = 10$
$2 + 3 + 3 =$	$8 + 2 - 3 =$	$2 + 4 + \quad = 10$

$10 - 6 + 2 =$	$10 - 2 + 4 =$	$5 + 2 - 3 =$
$9 - 5 + 6 =$	$8 - 3 + 2 =$	$2 + 4 - 5 =$
$5 - 3 + 7 =$	$9 - 5 + 1 =$	$3 + 3 - 4 =$
$8 - 1 + 3 =$	$10 - 2 + 2 =$	$2 + 5 - 1 =$
$9 - 4 + 2 =$	$7 - 1 + 3 =$	$4 + 2 - 6 =$
$10 - 7 + 5 =$	$9 - 4 + 2 =$	$2 + 2 - 1 =$

## PUBLIC SCHOOL ARITHMETIC.

2 apples at 5 cents each would cost  
 3 pencils at 2 cents each would cost  
 2 sheep at 4 dollars each would cost  
 4 oranges at 2 cents each would cost  
 2 pencils at 3 cents each would cost  
 3 hats at 3 dollars each would cost

1. John had 10 cents. He bought 2 marbles at 3 cents each. How much money had he left?
2. Mary had 10 cents. She bought 2 bags of popcorn at 4 cents each. How much money had she left?
3. Ted had 3 marbles. Jim had 4 and Jack had 3. They gave them all to Tom. He lost 2. How many had Tom then?

$$\begin{aligned}10 \text{ cents} - 3 \text{ times } 2 \text{ cents} &= \\10 \text{ cents} - 4 \text{ times } 2 \text{ cents} &= \\10 \text{ cents} - 3 \text{ times } 3 \text{ cents} &= \\10 \text{ cents} - 2 \text{ times } 1 \text{ cent} &= \\9 \text{ cents} - 2 \text{ times } 2 \text{ cents} &= \\9 \text{ cents} - 7 \text{ times } 1 \text{ cent} &= \end{aligned}$$

$7 + 2 - 3 =$	$10 - 6 + 2 =$	$10 - 2 + 4 =$
$6 + 4 - 7 =$	$8 - 3 + 4 =$	$8 - 2 + 3 =$
$3 + 5 - 2 =$	$9 - 5 + 3 =$	$9 - 3 + 1 =$
$3 + 7 - 4 =$	$10 - 7 + 5 =$	$10 - 2 + 2 =$
$2 + 8 - 6 =$	$7 - 2 + 4 =$	$9 - 4 + 2 =$
$1 + 7 - 3 =$	$10 - 5 + 2 =$	$10 - 3 + 3 =$

## Add

$$\begin{array}{r}
 3 & 3 & 6 & 5 & 4 & 6 & 2 & 2 & 2 \\
 4 & 5 & 3 & 2 & 3 & 1 & 3 & 3 & 6 \\
 1 & 2 & 1 & 2 & 3 & 2 & 4 & 5 & 2 \\
 \hline
 & & & & & & & &
 \end{array}$$

Write in figures:

V, II, I, X, III, V, X, II.

1. John bought 2 sheep at 5 dollars each. What did he pay for them?
2. Mary bought 3 hats at 3 dollars each. How much did the hats cost?
3. Ted had 10 dollars. He bought 3 pigs at 2 dollars each. How much had he left?
4. Fred had 9 marbles. He gave Jane 2, John 4, and Jim 1. How many had he left?

Write in letters:

10, 1, 2, 5, 3, 10, 2, 5, 10.

$3t3 - 2t4 =$	$10 - 2t1 =$	$6 + 4 - 3 =$
$4t2 - 3t1 =$	$8 - 2t3 =$	$7 + 2 - 5 =$
$2t4 - 2t2 =$	$9 - 3t3 =$	$10 - 1 - 1 =$
$2t5 - 2t2 =$	$10 - 2t5 =$	$10 - 4 - 2 =$
$7t1 - 3t2 =$	$7 - 2t2 =$	$3 + 6 - 4 =$
$3t3 - 6t1 =$	$8 - 3t1 =$	$7 + 3 - 8 =$

Write in figures:

V, X, VIII, VI, V, III, VII, X, VI.

Write in letters:

6, 8, 10, 2, 5, 7, 3, 8.

- |                     |                     |
|---------------------|---------------------|
| How many 5's in 10? | In 9 how many 3's?  |
| How many 4's in 8?  | In 6 how many 2's?  |
| How many 3's in 9?  | In 8 how many 4's?  |
| How many 2's in 8?  | In 10 how many 2's? |
| How many 2's in 10? | In 6 how many 3's?  |
| How many 3's in 6?  | In 9 how many 1's?  |

$6 = (3)$	$8 = (2)$	$(2) = 6$	$(1) = 7$
$8 = (4)$	$10 = (2)$	$(4) = 8$	$(3) = 6$
$9 = (3)$	$6 = (2)$	$(2) = 10$	$(5) = 10$
$10 = (5)$	$4 = (1)$	$(3) = 9$	$(2) = 8$
$4 = (2)$	$8 = (8)$	$(1) = 3$	$(1) = 5$
$5 = (1)$	$9 = (1)$	$(5) = 10$	$(2) = 4$

$4( ) = 8$	$8 = 2( )$	$3(2) =$	$2(3) =$
$2( ) = 10$	$9 = 3( )$	$4(2) =$	$4(1) =$
$3( ) = 9$	$10 = 2( )$	$5(2) =$	$2(4) =$
$2( ) = 4$	$4 = 4( )$	$2(2) =$	$2(5) =$
$3( ) = 6$	$6 = 3( )$	$5(1) =$	$1(7) =$
$5( ) = 10$	$4 = 2( )$	$3(3) =$	$3(2) =$

$10 \div 2 =$	$6 \div 3 =$	$4 \div 2 =$	$10 \div = 5$
$9 \div 3 =$	$6 \div 2 =$	$5 \div 5 =$	$8 \div = 2$
$8 \div 2 =$	$10 \div 2 =$	$7 \div 1 =$	$6 \div = 3$
$4 \div 2 =$	$8 \div 4 =$	$6 \div 6 =$	$9 \div = 3$
$10 \div 5 =$	$9 \div 1 =$	$8 \div 1 =$	$10 \div = 2$
$7 \div 1 =$	$10 \div 5 =$	$2 \div 2 =$	$8 \div = 4$

## PUBLIC SCHOOL ARITHMETIC.

$$5 = 10$$

$$2 =$$

$$3 =$$

$$4 =$$

$$1 =$$

$$2 =$$

$$4 \div$$

$$10 \div$$

$$10 \div$$

$$4 \div$$

$$6 \div$$

$$8 \div$$

$$9 \div$$

$$10 -$$

$$10 -$$

$$8 -$$

$$9 -$$

$$10 -$$

$$10 -$$

$$10 -$$

$$10 -$$

$$3 = 3$$

$$4 = 4$$

$$6 = 6$$

$$2 = 2$$

$$3 = 3$$

$$4 = 4$$

$$5 = 10$$

$$1 = 9$$

$$2 = 1$$

$$3t = 3t$$

$$2t = 2t$$

$$4t = 4t$$

$$1t = 1t$$

$$5t = 5t$$

$$2t = 2t$$

$$6 \div 3 + 4 =$$

$$10 \div 2 + 3 =$$

$$8 \div 2 + 5 =$$

$$9 \div 3 + 7 =$$

$$4 \div 2 + 8 =$$

$$10 \div 5 + 6 =$$

$$8 \div 5 + 5 =$$

$$7 \div 10 \div 2 =$$

$$9 \div 4 \div 2 =$$

$$10 \div 8 \div 4 =$$

$$9 \div 3 \div 3 =$$

$$7 \div 10 \div 5 =$$

Put in the signs:

5	5	10	3	3	9
5	2	10	9	3	3
2	4	8	4	5	9
8	4	2	9	2	7
6	4	10	4	3	7
10	6	4	5	8	3

3	2	6
4	2	2
7	10	3
3	9	6
7	2	5
8	1	8

Write in figures:—IV, VI, VIII, V, IX, VII, III.  
Write in letters:—3, 5, 7, 9, 4, 8, 10.

1. A hen had 9 chickens. 5 were brown, 2 were black, and the rest were white. How many were white?
2. There were 2 birds' nests in a tree, and each nest had 4 eggs in it. How many eggs were in both nests?
3. A news-boy sold 3 papers at 2 cents each. He received a ten cent piece. How much change should he return?  
 $7 + 2 + 1 - 6 - 2 + 5 =$   
 $3 + 5 - 2 + 4 - 7 - 1 =$   
 $9 - 6 + 2 - 1 + 5 - 2 =$   
 $6 + 4 - 3 + 2 - 6 + 4 =$   
 $5 - 2 + 5 - 2 - 1 + 4 =$   
 $2 + 4 + 4 - 3 - 4 + 5 =$
1. Ella had 10 buttons in a bag. She sewed 3 on her apron and lost 4. How many were left in the bag?
2. George had some tin soldiers. When he put them in rows, with 4 soldiers in a row, there were 2 rows. How many soldiers had he?
3. Fred spent 4 cents for candy, 2 cents for gum, 1 cent for a pencil, and had 2 cents left. How much money had he at first?
4. Helen went to look for eggs. She found 3 nests with 3 eggs in each. How many eggs did she find?
5. John rode 8 miles on his wheel. Fred rode half as far. How far did Fred ride?

GRADE TWO

111111

11 -

$11 = 10 +$	$11 - 5 =$	$11 = + 3$	$+ 4 = 11$
$11 = 2 +$	$11 - 4 =$	$11 = + 6$	$+ 3 = 11$
$11 = 8 +$	$11 - 9 =$	$11 = + 9$	$+ 9 = 11$
$11 = 6 +$	$11 - 1 =$	$11 = + 10$	$+ 1 = 11$
$11 = 3 +$	$11 - 3 =$	$11 = + 4$	$+ 5 = 11$
$11 = 7 +$	$11 - 7 =$	$11 = + 8$	$+ 8 = 11$

**2**

$2 = 11 -$	$4 + = 11$	$11 - = 6$	$3 = 11 -$
$7 = 11 -$	$5 + = 11$	$11 - = 4$	$9 = 11 -$
$5 = 11 -$	$9 + = 11$	$11 - = 7$	$4 = 11 -$
$9 = 11 -$	$3 + = 11$	$11 - = 9$	$6 = 11 -$
$1 = 11 -$	$7 + = 11$	$11 - = 5$	$10 = 11 -$
$8 = 11 -$	$1 + = 11$	$11 - = 1$	$7 = 11 -$

**3**

$11 - 2 - 5 =$	$11 = 2 + 4 +$	$11 - 5 t 2 =$
$11 - 4 - 4 =$	$11 = 7 + 7 +$	$11 - 3 t 3 =$
$11 - 3 - 6 =$	$11 = 1 + 6 +$	$11 - 4 t 2 =$
$11 - 7 - 1 =$	$11 = 5 + 3 +$	$11 - 3 t 2 =$
$11 - 3 - 2 =$	$11 = 2 + 6 +$	$11 - 2 t 2 =$
$11 - 6 - 4 =$	$11 = 4 + 3 +$	$11 - 2 t 5 =$

**4**

$11 - 8 \div 2 =$	$11 = 1 + 5 +$	$11 - 2 t 4 =$
$11 - 6 \div 3 =$	$11 = 2 + 8 +$	$11 - 1 t 3 =$
$11 - 10 \div 2 =$	$11 = 3 + 3 +$	$11 - 7 t 1 =$
$11 - 9 \div 3 =$	$11 = 4 + 4 +$	$11 - 3 t 2 =$
$11 - 4 \div 2 =$	$11 = 5 + 2 +$	$11 - 4 t 1 =$
$11 - 7 \div 1 =$	$11 = 1 + 2 +$	$11 - 5 t 2 =$

## 5

1. Fred had 11 pencils. He lost 1. He then gave one half of what he had left to his sister. How many did his sister get?

2. Jennie had 11 cents. She spent 2 cents for candy. She then divided the rest equally among 3 little girls. How many cents did each girl have?

3. Jack had 11 marbles. He gave Jim 4 and Ted 3. How many marbles had he left?

4. A man had 11 horses. He has 2 binders with 4 horses on each at work in the field. The rest are in the pasture. How many are in the pasture?

## 6

Write in letters:—5, 7, 3, 9, 2, 10, 4, 6, 1, 8.

Add

				7				
4	3	4	1	2	3	7	3	3
3	6	3	7	5	5	2	2	2
2	1	4	2	4	3	1	5	6
—	—	—	—	—	—	—	—	—
6	2	5	5	1	5	3	2	2
3	2	3	2	6	1	1	6	6
1	7	3	2	4	5	4	2	—
—	—	—	—	—	—	—	—	—

## 8

- 6 + 2 =	8 + 3 - 6 =	2 + 3 + 5 =
11 - 8 + 7 =	2 + 8 - 4 =	8 - 1 - 3 =
10 - 4 + 5 =	5 + 4 - 3 =	4 + 5 + 2 =
9 - 6 + 2 =	1 + 10 - 7 =	3 + 8 - 7 =
10 - 8 + 6 =	6 + 5 - 3 =	11 - 6 + 4 =
11 - 9 + 4 =	.2 + 6 - 5 =	8 + 2 - 5 =

## PUBLIC SCHOOL ARITHMETIC.

$$\begin{array}{r}
 & & 9 \\
 11 - 2 - 3 - 4 - 1 = & \\
 4 + 5 + 2 - 7 - 3 = & \\
 2 + 6 + 3 - 4 - 1 = & \\
 10 - 3 - 2 + 3 + 2 = & \\
 4 + 6 - 3 - 2 + 6 = &
 \end{array}$$

10

1. John had 11 marbles. He gave 5 to Harry and 3 to Fred, and lost 1. How many had he left?
2. Mary had 3 dolls. She got 8 more at Christmas. She gave away four. How many had she left?
3. Jennie had 6 chickens. Mary has 2 and Lucy has 3. How many chickens have they altogether?
4. With 11 cents, how many pencils at 3 cents each could you buy?
5. If pens cost 2 cents each, how many can I buy with 11 cents?

Write in figures:

11

VI, IX, III, V, X, IV, VIII, II, VII, XI.

$12 = 6 +$	$12 - 7 =$	$12 = + 3$	$12 - = 3$
$12 = 8 +$	$12 - 10 =$	$12 = + 7$	$12 - = 8$
$12 = 2 +$	$12 - 1 =$	$12 = + 9$	$12 - = 5$
$12 = 5 +$	$12 - 8 =$	$12 = + 4$	$12 - = 2$
$12 = 9 +$	$12 - 5 =$	$12 = + 2$	$12 - = 9$
$12 = 4 +$	$12 - 3 =$	$12 = + 6$	$12 - = 1$

## PUBLIC SCHOOL ARITHMETIC.

70

13

$12 = 2 t$	$12 \div 4 =$	$2 +$	$= 12$	$3 = 12 -$
$12 = 4 t$	$12 \div 6 =$	$5 +$	$= 12$	$7 = 12 -$
$12 = 6 t$	$12 \div 3 =$	$3 +$	$= 12$	$1 = 12 -$
$12 = 12 t$	$12 \div 1 =$	$7 +$	$= 12$	$6 = 12 -$
$12 = 3 t$	$12 \div 2 =$	$8 +$	$= 12$	$8 = 12 -$
$12 = 1 t$	$12 \div 12 =$	$10 +$	$= 12$	$5 = 12 -$

14

$3 t = 12$	$12 \div = 3$	$t 2 = 12$	$4 = 12 \div$
$6 t = 12$	$12 \div = 6$	$t 4 = 12$	$6 = 12 \div$
$4 t = 12$	$12 \div = 1$	$t 1 = 12$	$1 = 12 \div$
$1 t = 12$	$12 \div = 4$	$t 6 = 12$	$2 = 12 \div$
$2 t = 12$	$12 \div = 12$	$t 3 = 12$	$12 = 12 \div$
$12 t = 12$	$12 \div = 2$	$t 12 = 12$	$3 = 12 \div$

15

$12 - 3 - 4 =$	$12 = 2 + 4 +$	$3 + 7 + = 12$
$12 - 8 - 3 =$	$12 = 3 + 6 +$	$2 + 5 + = 12$
$12 - 2 - 3 =$	$12 = 5 + 3 +$	$1 + 3 + = 12$
$12 - 4 - 5 =$	$12 = 2 + 8 +$	$6 + 5 + = 12$
$12 - 4 - 2 =$	$12 = 3 + 2 +$	$2 + 2 + = 12$
$12 - 7 - 4 =$	$12 = 4 + 4 +$	$5 + 4 + = 12$

16

$12 - 2 t 3 =$	$12 - 6 \div 3 =$	$12 = 8 \div 2 +$
$12 - 3 t 4 =$	$12 - 8 \div 2 =$	$12 = 9 \div 3 +$
$12 - 5 t 2 =$	$12 - 12 \div 4 =$	$12 = 10 \div 2 +$
$12 - 3 t 3 =$	$12 - 10 \div 2 =$	$12 = 12 \div 3 +$
$12 - 2 t 2 =$	$12 - 7 \div 1 =$	$12 = 12 \div 2 +$
$12 - 4 t 2 =$	$12 - 9 \div 3 =$	$12 = 8 \div 4 +$

0  
0  
0  
Add  
8  
1  
2  
-

- 17

71

  1. Harry had 12 apples. He ate 6 and gave Fred 3.  
How many had he left?
  2. John had 12 cents. He spent 5 cents for candy  
and 6 cents for nuts. How much money had he left?
  3. Mary had 12 plums. She ate 4 and divided the  
rest equally between Jane and Ella. How many did  
Ella get?
  4. Bob sells 3 sheep at 4 dollars each. He buys a  
coat for 10 dollars. How much has he left?

Write in letters :— 4, 10, 9, 8, 12, 6, 7, 3, 11.

One-half a foot =  
One-third of a foot =  
One-fourth of a foot =

$$\begin{array}{l} 19 \\ \text{One-half of } 8 = \\ \text{One-fifth of } 10 = \\ \text{One-third of } 9 = \end{array}$$

6 inches = what part of a foot?  
3 inches = what part of a foot?  
4 inches = what part of a foot?

466

8	7	6	5	4	2
1	4	3	5	4	7
2	1	2	4	3	1
1	-	x	-	-	3
2	-	-	-	-	1

20

$$12 \left\{ \begin{array}{l} 6 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} 4 \\ 6 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} 4 \\ 6 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} 4 \end{array} \right.$$

$$12 \left\{ \begin{array}{l} 6 \left\{ \begin{array}{l} 3 \\ 3 \end{array} \right\} \\ 6 \left\{ \begin{array}{l} 3 \\ 3 \end{array} \right\} \end{array} \right.$$

How many 6's in 12?

How many 2's in 6?

How many 2's in two 6's?

How many 2's in 12?

6 is what part of 12?

2 is what part of 6?

2 is what part of 12?

One-sixth is what part of  
one-half?

How many 6's in 12?

How many 3's in 6?

How many 3's in two 6's?

How many 3's in 12?

6 is what part of 12?

3 is what part of 6?

3 is what part of 12?

One-fourth is what part of  
one-half?

21

1. Ned had 12 apples. He gave his brother one-half of them. How many apples had he left?

2. Jennie had 12 oranges. She gave Mary one-third of them. How many did Mary get? How many had Jennie left?

3. Bessie had 12 cents. She bought 2 oranges at 5 cents each. How many cents had she left?

## PUBLIC SCHOOL ARITHMETIC.

$$11 - 2 - 5 =$$

**22**

$$12 - 6 - 2 =$$

$$3 \times 2 + 4 =$$

$$3 + 2 + 5 =$$

$$10 - 3 - 4 =$$

$$2 \times 5 + 1 =$$

$$1 + 4 + 3 =$$

$$11 - 5 - 1 =$$

$$4 \times 2 + 4 =$$

$$6 + 2 + 4 =$$

$$12 - 4 - 3 =$$

$$3 \times 3 + 2 =$$

$$5 + 1 + 3 =$$

$$10 - 2 - 1 =$$

$$1 \times 7 + 4 =$$

$$2 + 2 + 5 =$$

$$11 - 2 \times 4 =$$

**23**

$$12 - 3 \times 3 =$$

$$8 \div 2 + = 11$$

$$9 \div 3 + 12 \div 2 =$$

$$10 - 3 \times 2 =$$

$$12 \div 2 + = 10$$

$$10 \div 2 + 8 \div 2 =$$

$$12 - 2 \times 6 =$$

$$9 \div 3 + = 12$$

$$6 \div 2 + 12 \div 3 =$$

$$10 - 1 \times 7 =$$

$$7 \div 7 + = 8$$

$$12 \div 6 + 4 \div 2 =$$

$$11 - 2 \times 5 =$$

$$10 \div 2 + = 12$$

$$5 \div 1 + 6 \div 3 =$$

$$12 \div 3 + = 9$$

$$7 \div 7 + 8 \div 4 =$$

$$11 = 4 + 5 +$$

**24**

$$12 = 6 + 5 +$$

$$12 - 3 - = 2$$

$$6 \times 2 - = 4$$

$$9 = 2 + 3 +$$

$$11 - 2 - = 6$$

$$2 \times 5 - = 3$$

$$12 = 3 + 5 +$$

$$10 - 1 - = 3$$

$$3 \times 4 - = 7$$

$$10 = 6 + 2 +$$

$$12 - 4 - = 2$$

$$2 \times 3 - = 1$$

$$11 = 3 + 4 +$$

$$12 - 6 - = 1$$

$$4 \times 3 - = 2$$

$$11 - 3 - = 4$$

$$2 \times 6 - = 9$$

Add

**25**

$$\begin{array}{r} 3 \\ 2 \\ 2 \\ 4 \\ - \\ 4 \\ 2 \\ 5 \\ - \end{array}$$

$$\begin{array}{r} 8 \\ 5 \\ 2 \\ 1 \\ - \\ 6 \\ 5 \\ 1 \\ - \end{array}$$

$$\begin{array}{r} 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ - \end{array}$$

$$\begin{array}{r} 2 \\ 4 \\ 3 \\ - \\ 8 \\ 3 \\ 1 \\ - \end{array}$$

$$\begin{array}{r} 5 \\ 6 \\ 3 \\ - \\ 5 \\ 5 \\ 1 \\ - \end{array}$$

$$\begin{array}{r} 4 \\ 2 \\ 6 \\ 4 \\ 6 \\ 1 \\ - \end{array}$$

$$\begin{array}{r} 5 \\ 3 \\ 2 \\ 6 \\ 3 \\ - \end{array}$$

$$\begin{array}{r} 3 \\ 6 \\ 1 \\ 5 \\ 5 \\ 1 \\ - \end{array}$$

$$\begin{array}{r} 4 \\ 2 \\ 6 \\ 4 \\ 6 \\ 1 \\ - \end{array}$$

## 26

1. How many quarts in 12 pints?
2. How many days in 1 week and 4 days?
3. How many inches in one-half a foot?
4. How many eggs in a dozen?
5. How many eggs in one-fourth of a dozen?
6. A boy had a dozen eggs. He broke one-sixth of them. How many had he left?

## 27

$13 = 6 +$	$13 - 7 =$	$5 = 13 -$	$13 - 2 =$
$13 = 3 +$	$13 - 9 =$	$10 = 13 -$	$13 - 9 =$
$13 = 5 +$	$13 - 2 =$	$1 = 13 -$	$13 - 7 =$
$13 = 7 +$	$13 - 6 =$	$4 = 13 -$	$13 - 5 =$
$13 = 11 +$	$13 - 4 =$	$7 = 13 -$	$13 - 11 =$
$13 = 9 +$	$13 - 8 =$	$9 = 13 -$	$13 - 6 =$

## 28

$13 - = 4$	$13 = + 6$	$4 + = 13$	$+ 6 = 13$
$13 - = 7$	$13 = + 9$	$8 + = 13$	$+ 10 = 13$
$13 - = 2$	$13 = + 2$	$11 + = 13$	$+ 9 = 13$
$13 - = 10$	$13 = + 10$	$1 + = 13$	$+ 2 = 13$
$13 - = 5$	$13 = + 5$	$7 + = 13$	$+ 5 = 13$
$13 - = 9$	$13 = + 7$	$5 + = 13$	$+ 7 = 13$

## 29

$13 - 1 - 2 =$	$13 = 2 + 6 +$	$3 + 7 + = 13$	$3 +$
$13 - 4 - 4 =$	$13 = 5 + 4 +$	$5 + 4 + = 13$	$2 +$
$13 - 6 - 3 =$	$13 = 7 + 2 +$	$6 + 5 + = 13$	$1 +$
$13 - 8 - 2 =$	$13 = 1 + 3 +$	$5 + 7 + = 13$	$5 +$
$13 - 3 - 4 =$	$13 = 2 + 5 +$	$2 + 3 + = 13$	$3 +$
$13 - 2 - 2 =$	$13 = 4 + 4 +$	$3 + 3 + = 13$	$2 +$

$13 - 2 \times 5 =$

$13 - 3 \times 3 =$

$13 - 4 \times 2 =$

$13 - 2 \times 6 =$

$13 - 4 \times 3 =$

$13 - 1 \times 7 =$

$13 - 12 \div 2 =$

$13 - 10 \div 2 =$

$13 - 8 \div 2 =$

$13 - 6 \div 2 =$

$13 - 12 \div 3 =$

$13 - 9 \div 3 =$

30

$13 = 8 \div 4 +$

$13 = 10 \div 2 +$

$13 = 12 \div 4 +$

$13 = 6 \div 2 +$

$13 = 4 \div 2 +$

$13 = 10 \div 5 +$

31

1. Mary had 6 pencils. Ella had 3, and Helen had 4. How many had they altogether?
2. Arthur had 13 chickens. He sold 5 to Jim, 3 to Ned. How many had he left?
3. A man had 3 pigs in one pen. 7 pigs in another pen, and 2 in another pen. How many pigs had he?
4. Fred had 13 cents. He spent 4 cents for a pencil, 2 cents for an apple, and 3 cents for candy. How much money had he left?
5. A boy had 13 dollars. He bought 2 lambs at 3 dollars each and 2 geese at 2 dollars each. How much money had he left?

32

$3 + 6 + 4 =$

$2 + 7 + 2 =$

$1 + 3 + 7 =$

$5 + 3 + 4 =$

$3 + 4 + 6 =$

$2 + 3 + 7 =$

$13 - 2 - 6 =$

$12 - 5 - 3 =$

$11 - 2 - 1 =$

$10 - 3 - 2 =$

$13 - 4 - 2 =$

$12 - 1 - 4 =$

$5 + 1 + = 13$

$6 + 2 + = 12$

$1 + 3 + = 9$

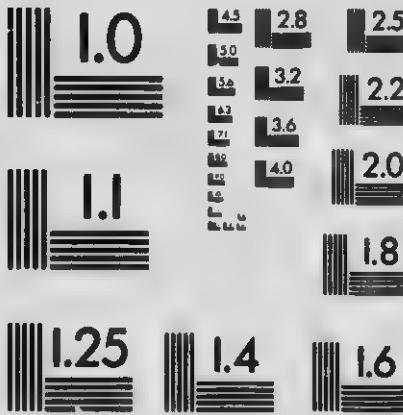
$3 + 5 + = 13$

$2 + 3 + = 12$

$1 + 6 + = 11$



MICROCOPY RESOLUTION TEST CHART  
(ANSI and ISO TEST CHART No. 2)



APPLIED IMAGE Inc



1853 East Main Street  
Rochester, New York 14609 USA  
(716) 482 - 0300 - Phone  
(716) 288 - 5989 - Fax

## 33

$$\begin{aligned}
 13 - 6 - 2 + 4 - 3 &= \\
 7 + 4 - 5 + 7 - 8 &= \\
 4 + 5 + 3 - 2 - 4 &= \\
 11 - 3 - 3 + 5 - 2 &= \\
 6 + 7 - 9 + 7 + 1 &= \\
 5 + 8 - 7 - 2 + 9 &=
 \end{aligned}$$

## 34

Write in letters:—6, 8, 10, 7, 12, 9, 13, 4, 11.

Write in figures:—IV, XIII, VI, IX, VIII, II, VII,  
XII, III, X, IV, XIII.

## 35

$13 - 4 -$	$= 6$	$3t2 +$	$= 13$	$8 \div 2 +$	$= 13$
$13 - 2 -$	$= 4$	$2t4 +$	$= 12$	$6 \div 3 +$	$= 10$
$12 - 1 -$	$= 5$	$3t3 +$	$= 13$	$12 \div 2 +$	$= 11$
$11 - 2 -$	$= 2$	$3t2 +$	$= 10$	$10 \div 2 +$	$= 13$
$13 - 6 -$	$= 5$	$4t2 +$	$= 11$	$9 \div 3 +$	$= 12$
$12 - 3 -$	$= 7$	$2t6 +$	$= 13$	$12 \div 3 +$	$= 13$

## 36

$6 + 7 - 4 =$	$13 - 4t2 =$	$13 - 8 + 2 =$
$8 + 3 - 6 =$	$12 - 2t6 =$	$12 - 9 + 6 =$
$9 + 4 - 7 =$	$13 - 2t2 =$	$13 - 7 + 4 =$
$5 + 7 - 3 =$	$11 - 3t3 =$	$11 - 8 + 10 =$
$4 + 8 - 5 =$	$13 - 3t2 =$	$13 - 11 + 6 =$
$6 + 5 - 2 =$	$12 - 1t7 =$	$10 - 4 + 7 =$

## PUBLIC SCHOOL ARITHMETIC.

Add

$$\begin{array}{r} 8 \\ 2 \\ 3 \\ - \\ 5 \end{array}$$

$$\begin{array}{r} 2 \\ 4 \\ 6 \\ - \\ 3 \end{array}$$

$$\begin{array}{r} 7 \\ 5 \\ 1 \\ - \\ 2 \end{array}$$

$$\begin{array}{r} 2 \\ 4 \\ 5 \\ - \\ 6 \end{array}$$

$$\begin{array}{r} 2 \\ 7 \\ 4 \\ - \\ 4 \end{array}$$

$$\begin{array}{r} 3 \\ 3 \\ 4 \\ - \\ 5 \end{array}$$

$$\begin{array}{r} 4 \\ 6 \\ 7 \\ - \\ 1 \end{array}$$

$$\begin{array}{r} 3 \\ 2 \\ 3 \\ - \\ 2 \end{array}$$

$$\begin{array}{r} 4 \\ 2 \\ 2 \\ - \\ 8 \end{array}$$

$$\begin{array}{r} 3 \\ 1 \\ 2 \\ - \\ 9 \end{array}$$

$$\begin{array}{r} 5 \\ 5 \\ 5 \\ - \\ 3 \end{array}$$

$$\begin{array}{r} 2 \\ 4 \\ 5 \\ - \\ 4 \end{array}$$

$$\begin{array}{r} 3 \\ 5 \\ 5 \\ - \\ 4 \end{array}$$

$$\begin{array}{r} 5 \\ 5 \\ 5 \\ - \\ 4 \end{array}$$

$$\begin{array}{r} 2 \\ 7 \\ 3 \\ - \\ 4 \end{array}$$

$$\begin{array}{r} 2 \\ 4 \\ 4 \\ - \\ 4 \end{array}$$

$$14 = 3 +$$

$$14 = 5 +$$

$$14 = 7 +$$

$$14 = 6 +$$

$$14 = 10 +$$

$$14 = 9 +$$

$$8 +$$

$$2 +$$

$$11 +$$

$$5 +$$

$$7 +$$

$$6 +$$

$$= 14$$

$$= 14$$

$$= 14$$

$$= 14$$

$$= 14$$

$$= 14$$

$$= 14$$

38

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$7 =$$

$$2 =$$

$$9 =$$

$$2 =$$

$$9 =$$

$$1 =$$

$$1 =$$

$$6 =$$

$$2 =$$

$$7 =$$

$$9 =$$

$$11 =$$

$$1 =$$

$$11 =$$

$$2 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

39

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

$$14 -$$

40

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 =$$

$$14 - 1 - 6 =$$

$$14 - 2 - 7 =$$

$$14 - 3 - 4 =$$

$$14 - 2 - 2 =$$

$$14 - 3 - 5 =$$

$$14 - 6 - 5 =$$

	41	
$14 \div 2 =$	$2 t = 14$	$\div 2 = 6$
$12 \div 3 =$	$3 t = 9$	$\div 3 = 2$
$10 \div 2 =$	$4 t = 12$	$\div 4 = 3$
$14 \div 7 =$	$5 t = 10$	$\div 7 = 2$
$12 \div 6 =$	$7 t = 14$	$\div 2 = 6$
$12 \div 4 =$	$3 t = 6$	$\div 2 = 7$

Add

	42							
8	7	6	3	3	3	3	2	5
2	5	4	5	4	4	7	4	6
3	2	4	3	6	7	2	8	3
-	-	-	-	-	-	-	-	-
7	4	6	3	3	5	2	3	8
2	4	2	3	9	3	6	1	4
4	5	6	5	2	4	5	6	1
-	-	-	-	-	-	-	-	-

43

$$14 \left\{ \begin{array}{l} 2 \\ 2 \\ 10 \left\{ \begin{array}{l} 2 \\ 2 \\ 2 \\ 2 \end{array} \right. \\ 2 \\ 4 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right. \end{array} \right. \\ \text{How many 2's in 10 ?} \\ \text{How many 2's in 4 ?} \\ \text{How many 2's in 10 and 4 ?} \\ \text{How many 2's in 14 ?} \\ \text{2 is what part of 14 ?} \end{math>$$

One-half of 14 =  
 One-seventh of 14 =  
 One-sixth of 12 =  
 One-fourth of 8 =

One-third of 12 =  
 One-fourth of 4 =  
 One-half of 10 =  
 One-fifth of 10 =

## PUBLIC SCHOOL ARITHMETIC.

$14 - 2t5 =$	<b>44</b>	$14 - 6 \div 3 =$
$14 - 3t4 =$	$2t7 - 3 =$	$14 - 14 \div 2 =$
$14 - 2t3 =$	$6t2 - 4 =$	$14 - 9 \div 3 =$
$14 - 4t2 =$	$2t5 - 7 =$	$14 - 8 \div 2 =$
$14 - 6t2 =$	$7t2 - 5 =$	$14 - 10 \div 2 =$
$14 - 3t3 =$	$4t3 - 9 =$	$14 - 12 \div 2 =$
	$5t2 - 1 =$	

$3 + 6 + 4 =$	<b>45</b>	$14 - 6 - 7 =$
$2 + 8 + 3 =$	$13 = 6 + 4 +$	$13 - 2 - 5 =$
$4 + 7 + 3 =$	$14 = 7 + 5 +$	$12 - 6 - 4 =$
$5 + 4 + 5 =$	$12 = 1 + 3 +$	$11 - 5 - 3 =$
$2 + 1 + 7 =$	$14 = 5 + 4 +$	$14 - 2 - 6 =$
$3 + 8 + 2 =$	$13 = 2 + 6 +$	$14 - 3 - 4 =$
	$11 = 3 + 2 +$	

$14 \text{ cents} - 2t7 \text{ cents} =$	<b>46</b>	$14 \text{ cents} - 2t5 \text{ cents} =$
$14 \text{ cents} - 3t4 \text{ cents} =$	$14 \text{ cents} - 6t2 \text{ cents} =$	$14 \text{ cents} - 3t3 \text{ cents} =$
$14 \text{ cents} - 4t2 \text{ cents} =$		

$14 - 6 - = 3$	<b>47</b>	$14 \div 2 + = 13$
$13 - 7 - = 4$	$14 = 2t4 +$	$6 \div 3 + = 11$
$11 - 2 - = 5$	$11 = 2t2 +$	$12 \div 2 + = 14$
$12 - 3 - = 4$	$13 = 3t4 +$	$14 \div 7 + = 10$
$14 - 7 - = 5$	$14 = 2t7 +$	$10 \div 2 + = 13$
$13 - 4 - = 6$	$12 = 3t3 +$	$8 \div 2 + = 12$
	$14 = 5t2 +$	

## 48

$14 = 6 + 2 +$	$7 + 2 =$	$3 + 6 + 5 =$
$13 = 5 + 4 +$	$2 + 6 -$	$8 - 3 + 4 =$
$10 = 2 + 2 +$	$2 + 7 -$	$14 - 6 - 3 =$
$14 = 4 + 5 +$	$5 + 2 - 2 + 2 =$	$7 + 4 - 2 =$
$12 = 6 + 2 +$	$3 + 4 - 3 + 2 =$	$8 + 5 - 9 =$
$13 = 3 + 2 +$	$7 + 2 - 2 + 7 =$	$7 - 3 + 6 =$

## 49

1. Jennie had 14 apples. She ate 6 and divided the rest equally among 4 girls. How many did she give each girl?

2. I had 14 cents. I bought 3 pencils at 3 cents each. How much had I left?

3. Ned had 14 cents. He spent 3 cents for candy. Then he bought 4 marbles at 2 cents each. How much money had he left?

4. Mary had 14 oranges. She gave her sister one-seventh of all she had. Then she gave her mother one-half of what she had left. How many did Mary have left?

## 50

$8 + = 15$	$15 - 10 =$	$15 = 6 +$	$15 - = 12$
$6 + = 15$	$15 - 4 =$	$15 = 5 +$	$15 - = 8$
$11 + = 15$	$15 - 6 =$	$15 = 7 +$	$15 - = 4$
$5 + = 15$	$15 - 7 =$	$15 = 11 +$	$15 - = 14$
$3 + = 15$	$15 - 9 =$	$15 = 3 +$	$15 - = 6$
$9 + = 15$	$15 - 2 =$	$15 = 9 +$	$15 - = 7$

## PUBLIC SCHOOL ARITHMETIC.

$4 = 15 -$	$15 \div 3 =$	$3t = 12$	$14 \div = 7$
$6 = 15 -$	$15 \div 5 =$	$4t = 8$	$12 \div = 2$
$10 = 15 -$	$14 \div 2 =$	$5t = 15$	$15 \div = 3$
$8 = 15 -$	$12 \div 6 =$	$2t = 14$	$10 \div = 2$
$12 = 15 -$	$14 \div 7 =$	$3t = 6$	$14 \div = 2$
$9 = 15 -$	$10 \div 5 =$	$3t = 15$	$15 \div = 5$

$$\begin{aligned}15 - 6 - 3 &= \\15 - 3 - 4 &= \\15 - 5 - 6 &= \\15 - 3 - 7 &= \\15 - 2 - 2 &= \\15 - 4 - 4 &= \end{aligned}$$

<b>52</b>	
$15 = 2 + 7 +$	$7 + 7 + = 15$
$15 = 9 + 3 +$	$3 + 9 + = 15$
$15 = 3 + 8 +$	$6 + 3 + = 15$
$15 = 8 + 6 +$	$4 + 4 + = 15$
$15 = 4 + 3 +$	$5 + 6 + = 15$
$15 = 7 + 5 +$	$7 + 5 + = 15$

$$\begin{aligned}15 = 7 + 2t \\15 = 3 + 3t \\15 = 1 + 2t \\15 = 5 + 5t \\15 = 9 + 3t \\15 = 6 + 2t\end{aligned}$$

<b>53</b>	
$15 - 6 - 3 =$	$15 \div 3 + = 15$
$15 - 2 - 5 =$	$15 \div 5 + = 15$
$15 - 3 - 5 =$	$12 \div 2 + = 15$
$15 - 9 - 2 =$	$14 \div 7 + = 15$
$15 - 3 - 7 =$	$10 \div 2 + = 15$
$15 - 2 - 5 =$	$8 \div 2 + = 15$

- 12  
- 8  
- 4  
- 14  
- 6  
- 7
- How many 1's in 15?  
How many 2's in 15?  
How many 3's in 15?  
How many 4's in 15?  
How many 5's in 15?  
How many 6's in 15?  
How many 7's in 15?  
How many 8's in 15?

- How many 9's in 15?  
How many 10's in 15?  
How many 11's in 15?  
How many 12's in 15?  
How many 13's in 15?  
How many 14's in 15?  
How many 15's in 15?

	55		
$8 + 0 +$	$= 15$	$15 - 2 - 3 =$	$3 + 4 + 5 =$
$5 + 4 +$	$= 15$	$15 - 4 - 2 =$	$5 + 6 + 4 =$
$1 + 1 +$	$= 15$	$15 - 6 - 7 =$	$8 + 6 + 1 =$
$3 + 4 +$	$= 15$	$15 - 8 - 4 =$	$2 + 5 + 8 =$
$2 + 8 +$	$= 15$	$15 - 7 - 8 =$	$1 + 3 + 7 =$
$6 + 2 +$	$= 15$	$15 - 3 - 6 =$	$2 + 5 + 6 =$

	56		
$15 \div 3 + 14 \div 2 =$	$14 - 15 \div 3 =$	$5 t 3 -$	$= 4$
$12 \div 4 + 15 \div 5 =$	$15 - 12 \div 2 =$	$2 t 6 -$	$= 2$
$8 \div 2 + 10 \div 2 =$	$13 - 14 \div 2 =$	$3 t 5 -$	$= 6$
$9 \div 3 + 12 \div 3 =$	$12 - 15 \div 5 =$	$2 t 7 -$	$= 5$
$15 \div 5 + 14 \div 7 =$	$13 - 12 \div 3 =$	$3 t 4 -$	$= 7$
$6 \div 2 + 12 \div 6 =$	$15 - 6 \div 2 =$	$6 t 2 -$	$= 9$

57  
How many weeks in 15 days?

How many yards in 15 inches?

How many quarts in 15 pints?

How many inches in 1 foot and 2 inches?

How many days in 1 week and 6 days?

How many feet in 4 yards and 2 feet?

How many pints in 5 quarts and 1 pint?

How many eggs in 1 dozen and 3 eggs?

	58		
$3 t 2 +$	$= 14$	$- 3 - 4 = 6$	$+ 2 + 6 = 15$
$4 t 3 +$	$= 15$	$- 7 - 2 = 5$	$+ 1 + 5 = 9$
$2 t 2 +$	$= 11$	$- 4 - 7 = 4$	$+ 3 + 9 = 14$
$3 t 4 +$	$= 13$	$- 6 - 7 = 2$	$+ 4 + 7 = 15$
$2 t 3 +$	$= 15$	$- 5 - 9 = 1$	$+ 6 + 3 = 15$
$4 t 2 +$	$= 14$	$- 2 - 3 = 8$	$+ 2 + 2 = 13$

$$15 \left\{ \begin{array}{l} 9 \\ 6 \end{array} \right. \left\{ \begin{array}{l} 3 \\ 3 \end{array} \right. \left\{ \begin{array}{l} 3 \\ 3 \end{array} \right. \left\{ \begin{array}{l} 3 \\ 3 \end{array} \right.$$

$$15 \left\{ \begin{array}{l} 10 \\ 5 \end{array} \right. \left\{ \begin{array}{l} 5 \\ 5 \end{array} \right. \left\{ \begin{array}{l} 5 \\ 5 \end{array} \right.$$

How many 3's in 6?  
 How many 3's in 9?  
 How many 3's in 6 and 9?  
 How many 3's in 15?  
 3 is what part of 15?

How many 5's in 15?  
 5 is what part of 15?  
 10 is what part of 15?  
 3 is what part of 15?  
 6 is what part of 15?

One-third of 15 + one-half of 14 =  
 One-sixth of 12 + one-fifth of 15 =  
 One-fourth of 8 + one-seventh of 14 =  
 One-third of 12 + one-half of 14 =  
 One-fifth of 10 + one-fourth of 12 =  
 One-fifth of 15 + one-third of 15 =

Write in figures:—XII, XIV, XV, VIII, IX, VI,  
 IV, XI, VII, XIII, X, XIV.  
 Write in letters:—9, 12, 7, 13, 6, 4, 14, 11, 15, 5,  
 8, 2.

61

Put in the signs:

• 15	8	7	2	4	6	7	6	13
4	7	11	8	11	3	8	10	2
6	3	3	9	15	6	12	3	4
14	8	6	5	8	13	12	3	9
9	13	4	15	3	5	6	2	12
5	11	6	14	7	2	4	9	13

62

Put in the signs:

6	10	4	4	8	2	6	3	9
13	2	15	7	5	12	2	5	3
2	5	10	5	12	7	4	11	7
9	3	3	4	1	4	11	7	4
2	6	3	5	4	9	8	13	5
8	11	11	15	1	14	12	2	6

63

1. Mary had 15 oranges. She gave Jane 6 and Eva 7. How many had she left?
2. John had 4 marbles. He bought 7. His brother gave him 3. How many marbles had he?
3. A boy had 15 apples. He gave 2 to each of 6 girls. How many did he have left?
4. Jennie bought a hat for 4 dollars, a coat for 5 dollars, a pair of shoes for 3 dollars. How much money had she left, if she had 15 dollars at first?

5. I had 15 sheep. I sold one-third of them at 2 dollars each. I spent 3 dollars for a hat. How much money had I left?

6. Fred had 15 cents. He bought 3 pencils at 3 cents each. How much had he left?

7. Arthur had 15 oranges. He ate 3 and then divided the rest equally among 4 boys. How many did each boy get?

## 64

How many 8's in 16?

How many 4's in 8?

How many 4's in two 8's?

How many 4's in 16?

How many 2's in 4?

How many 2's in four 4's?

How many 2's in 16?

2 is what part of 16?

2 is what part of 4?

One-eighth is what part of one-fourth?

2 is what part of 8?

One-eighth is what part of one-half?

4 is one-fourth of

2 is one-fourth of

4 is one-half of

3 is one-fifth of

6 is one-half of

5 is one-third of

86

- One-fourth of 16 + one-third of 15 =  
 One-half of 14 + one-fifth of 15 =  
 One-eighth of 16 + one-third of 12 =  
 One-third of 9 + one-sixth of 12 =  
 One-half of 16 + one-fourth of 8 =  
 One-third of 12 + one-fourth of 16 =

88

$16 = 10 +$	$16 - 7 =$	$3 +$	$= 16$	$16 \div 8 =$
$16 = 8 +$	$16 - 12 =$	$15 +$	$= 16$	$16 \div 4 =$
$16 = 9 +$	$16 - 6 =$	$9 +$	$= 16$	$16 \div 2 =$
$16 = 14 +$	$16 - 9 =$	$2 +$	$= 16$	$16 \div 16 =$
$16 = 11 +$	$16 - 8 =$	$7 +$	$= 16$	$16 \div 3 =$
$16 = 3 +$	$16 - 5 =$	$10 +$	$= 16$	$16 \div 2 =$

67

$5 = 16 -$	$+ 2 = 16$	$16 -$	$= 4$	$16 \div 2 =$
$8 = 16 -$	$+ 6 = 16$	$16 -$	$= 7$	$16 - 9 =$
$12 = 16 -$	$+ 9 = 16$	$16 -$	$= 11$	$16 = 4 t$
$7 = 16 -$	$+ 11 = 16$	$16 -$	$= 14$	$16 \div = 2$
$4 = 16 -$	$+ 13 = 16$	$16 -$	$= 19$	$16 = 5 +$
$11 = 16 -$	$+ 1 = 16$	$16 -$	$= 1$	$10 + = 16$

68

$3 t 5 +$	$= 16$	$16 - 2 t 4 =$	$16 - 8 + 3 =$
$4 t 3 +$	$= 16$	$16 - 3 t 3 =$	$16 - 10 + 5 =$
$2 t 3 +$	$= 16$	$16 - 5 t 3 =$	$16 - 9 + 3 =$
$3 t 4 +$	$= 16$	$16 - 2 t 2 =$	$16 - 13 + 8 =$
$2 t 5 +$	$= 16$	$16 - 4 t 4 =$	$16 - 11 + 9 =$
$3 t 3 +$	$= 16$	$16 - 2 t 8 =$	$16 - 7 + 5 =$

## PUBLIC SCHOOL ARITHMETIC.

$16 - 16 \div 4 =$	$16 - 8 - 4 =$	$16 - 4 + 9 +$
$16 - 15 \div 3 =$	$16 - 4 - 5 =$	$16 - 3 + 8 +$
$16 - 14 \div 2 =$	$16 - 3 - 2 =$	$16 - 1 + 5 +$
$16 - 12 \div 3 =$	$16 - 4 - 7 =$	$16 - 2 + 4 +$
$16 - 12 \div 2 =$	$16 - 2 - 6 =$	$16 - 5 + 2 +$
$16 - 16 \div 2 =$	$16 - 3 - 9 =$	$16 - 7 + 2 +$
$16 = 4 + 2 t$	$3 + 8 + = 16$	$16 - 12 \div 2 +$
$16 = 2 + 7 t$	$5 + 7 + = 16$	$16 - 14 \div 2 +$
$16 = 6 + 2 t$	$9 + 5 + = 16$	$16 - 15 \div 5 +$
$16 = 7 + 3 t$	$4 + 5 + = 16$	$16 - 8 \div 2 +$
$16 = 8 + 4 t$	$3 + 5 + = 16$	$16 - 16 \div 8 +$
$16 = 12 + 2 t$	$5 + 6 + = 16$	$16 - 16 \div 4 +$

How many 1's in 16?  
 How many 2's in 16?  
 How many 3's in 16?  
 How many 4's in 16?  
 How many 5's in 16?  
 How many 6's in 16?  
 How many 7's in 16?  
 How many 8's in 16?

$4 t 4 =$	$5 + 9 =$
$15 \div 5 =$	$2 t 7 =$
$13 - 6 =$	$16 \div 8 =$
$7 + 9 =$	$10 + 6 =$
$5 t 3 =$	$12 - 9 =$
$8 + 6 =$	$16 - 9 =$

71 How many 9's in 16?  
 How many 10's in 16?  
 How many 11's in 16?  
 How many 12's in 16?  
 How many 13's in 16?  
 How many 14's in 16?  
 How many 15's in 16?  
 How many 16's in 16?

72	$2 t 8 =$	$3 = - 4$
	$15 - 9 =$	$7 = - 9$
	$6 + = 14$	$8 = - 3$
	$3 + = 12$	$10 = - 6$
	$- 7 = 9$	$5 = - 7$
	$t 6 = 12$	$8 = - 5$

## PUBLIC SCHOOL ARITHMETIC.

$$\begin{array}{r}
 - 7 = 4 & t 4 = 8 & 11 + = 16 & - 8 = 8 \\
 - 9 = 5 & 6 t = 12 & - 3 = 8 & 4 + = 16 \\
 - 8 = 7 & - 7 = 5 & 5 t = 15 & + 9 = 15 \\
 - 11 = 3 & 8 + = 14 & \div 4 = 4 & 3 t = 15 \\
 - 12 = 4 & \div 3 = 5 & 9 + 6 = & - 4 = 11 \\
 - 11 = 5 & 12 \div = 3 & - 7 = 9 & \div 2 = 7
 \end{array}$$

73

One-half of a pound = ounces.

One-fourth of a pound = ounces.

One-eighth of a pound = ounces.

One-half of a pound and 6 ounces are how many ounces?

What part of a pound are 4 ounces?

1 pound - 9 ounces =

7 ounces + one-half of a pound =

1½ ounces - one-half of a pound =

1 pound - 3 ounces =

Jack bought a pound of nuts and gave Nellie 5 ounces. How many ounces of nuts had Jack left?

Add

3	1	3	9	3	8	5	6	4	8
4	8	7	4	4	2	3	2	4	4
9	6	5	3	6	4	8	7	3	6
-	-	-	-	-	-	-	-	-	-
3	3	8	6	6	1	3	4	2	3
2	5	2	5	3	5	3	2	3	2
7	3	4	3	2	4	6	7	4	5
4	4	2	2	4	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
7	3	3	6	3	8	7	4	9	2
5	3	5	3	9	2	3	6	9	3
3	9	8	5	4	5	-	-	-	-
-	-	-	-	-	-	-	-	-	-

75

## PUBLIC SCHOOL ARITHMETIC.

$$\begin{array}{l} = 8 \\ = 16 \\ = 15 \\ = 15 \\ = 11 \\ = 7 \end{array}$$

ances ?

ellie 5

?

4

8

4

-

3

6

2

5

-

9

2

-

3

$$\begin{array}{l} 4 + 5 + 2 = \\ 6 + 7 + 3 = \\ 2 + 1 + 7 = \\ 6 + 4 + 5 = \\ 3 + 9 + 2 = \\ 5 + 6 + 3 = \end{array}$$

$$\begin{array}{r} 76 \\ 15 = 7 + + 2 \\ 16 = 4 + + 7 \\ 14 = 5 + + 8 \\ 15 = 8 + + 7 \\ 16 = 3 + + 4 \\ 15 = 2 + + 6 \end{array}$$

$$\begin{array}{r} 16 - 3 - 2 = \\ 15 - 1 - 7 = \\ 13 - 4 - 4 = \\ 16 - 4 - 3 = \\ 14 - 7 - 2 = \\ 15 - 5 - 3 = \end{array}$$

Count by 2's to 16.  
 Count by 4's to 16.  
 Count by 3's to 15.

77

Count by 5's to 15.  
 Count by 7's to 14.

Beginning with 1, count by 2's to 15.  
 Beginning with 1, count by 3's to 16.

78

$$\begin{array}{r} 8 + 7 - 9 + 5 - 4 = \\ 4 + 8 - 3 - 2 + 6 = \\ 16 - 4 - 3 + 5 - 3 = \\ 16 - 6 + 7 - 2 - 5 = \\ 9 + 4 - 6 - 3 + 11 = \end{array}$$

79

1. Mary had three five cent pieces and one cent. How much money had she?
2. If milk costs 4 cents a pint, how many pints can I buy with 16 cents?
3. There were 16 eggs in a basket. John took 4 and Jim took 7. How many were left in the basket?

4. A newsboy sold 3 papers at 4 cents each and received three five cents pieces. How much change should he return?

5. If molasses is 16 cents a quart, how much will 1 pint cost?

6. Sixteen boys started to run around a block, but only 9 of them finished. How many dropped out?

7. Jennie is 6 years old. Mary is 8 years older than Jennie. How old is Mary?

8. At 2 dollars a day, how much can a man earn in one week?

9. Jack nailed 4 boards on a fence. He puts 4 nails into each board. How many nails did he use?

## 80

$17 - 7 =$	$17 - 9 =$	$17 = 4 +$	$17 - = 7$
$17 - 13 =$	$17 - 11 =$	$17 = 7 +$	$17 - = 11$
$17 - 5 =$	$17 - 13 =$	$17 = 5 +$	$17 - = 9$
$17 - 2 =$	$17 - 16 =$	$17 = 6 +$	$17 - = 4$
$17 - 4 =$	$17 - 15 =$	$17 = 3 +$	$17 - = 15$
$17 - 1 =$	$17 - 12 =$	$17 = 2 +$	$17 - = 5$

## 81

$3 = 17 -$	$+ 16 = 17$	$8 + = 17$	$7 = 17 -$
$6 = 17 -$	$+ 7 = 17$	$15 + = 17$	$8 = 17 -$
$4 = 17 -$	$+ 9 = 17$	$6 + = 17$	$1 = 17 -$
$10 = 17 -$	$+ 11 = 17$	$12 + = 17$	$13 = 17 -$
$5 = 17 -$	$+ 13 = 17$	$3 + = 17$	$9 = 17 -$
$2 = 17 =$	$+ 5 = 17$	$7 + = 17$	$15 = 17 -$

## PUBLIC SCHOOL ARITHMETIC.

$3 + 5 +$	$= 17$	$17 - 4 - 6 =$	$17 = 4 + 6 +$
$6 + 8 +$	$= 17$	$17 - 3 - 4 =$	$17 = 3 + 9 +$
$5 + 4 +$	$= 17$	$17 - 11 - 4 =$	$17 = 10 + 1 +$
$8 + 3 +$	$= 17$	$17 - 2 - 10 =$	$17 = 5 + 4 +$
$2 + 3 +$	$= 17$	$17 - 13 - 2 =$	$17 = 1 + 7 +$
$4 + 4 +$	$= 17$	$17 - 8 - 9 =$	$17 = 11 + 3 +$

82

$17 = 4 t 4 +$	$17 - 16 \div 8 =$	$8 + 9 - 3 =$
$17 = 3 t 2 +$	$17 - 15 \div 3 =$	$7 + 5 - 4 =$
$17 = 8 t 2 +$	$17 - 16 \div 4 =$	$9 + 7 - 5 =$
$17 = 2 t 4 +$	$17 - 14 \div 2 =$	$4 + 13 - 8 =$
$17 = 2 t 6 +$	$17 - 12 \div 3 =$	$5 + 8 - 9 =$
$17 = 3 t 3 +$	$17 - 15 \div 5 =$	$11 + 5 - 8 =$

83

- How many pounds in 17 ounces?
- How many yards in 17 feet?
- How many feet in 17 inches?
- How many quarts in 17 pints?
- How many weeks in 17 days?
- How many feet in 4 yards and 2 feet?
- How many inches in 1 foot and 4 inches?
- How many pints in 7 quarts and 1 pint?
- How many days in 2 weeks and 2 days?
- How many days in 1 week and 6 days?
- How many pints in 4 quarts and 1 pint?

85

$17 = 5 + 2 t$	$17 = 12 \div 2 +$	$14 - 7 + 6 =$
$17 = 7 + 5 t$	$17 = 15 \div 3 +$	$15 - 9 + 4 =$
$17 = 3 + 2 t$	$17 = 16 \div 8 +$	$17 - 8 + 5 =$
$17 = 2 + 3 t$	$17 = 12 \div 3 +$	$17 - 11 + 3 =$
$17 = 8 + 3 t$	$17 = 14 \div 2 +$	$11 - 9 + 7 =$
$17 = 1 + 4 t$	$17 = 9 \div 3 +$	$13 - 6 + 5 =$

Add

					86				
6	9	7	4	8	7	6	5	6	
4	5	3	5	5	4	5	7	6	
7	3	2	7	4	3	6	5	3	
<hr/>									
3	8	3	4	5	4	4	2	3	
2	4	4	5	3	5	3	4	4	
4	3	6	4	6	3	5	6	8	
<hr/>									
5	2	4	3	2	5	1	5	1	
<hr/>									

87

How many 1's in 17?  
 How many 2's in 17?  
 How many 3's in 17?  
 How many 4's in 17?  
 How many 5's in 17?  
 How many 6's in 17?  
 How many 7's in 17?  
 How many 8's in 17?  
 How many 9's in 17?

How many 10's in 17?  
 How many 11's in 17?  
 How many 12's in 17?  
 How many 13's in 17?  
 How many 14's in 17?  
 How many 15's in 17?  
 How many 16's in 17?  
 How many 17's in 17?

## PUBLIC SCHOOL ARITHMETIC.

Subtract :

$$\begin{array}{r}
 & & 88 \\
 17 & 16 & 15 & 17 & 17 & 16 & 15 & 17 & 16 \\
 - 9 & - 7 & - 8 & - 13 & - 11 & - 12 & - 9 & - 3 & - 5 \\
 \hline
 & & & & & & & &
 \end{array}$$

From 17 take away 2 as many times as you can.

From 17 take away 3 as many times as you can.

From 17 take away 4 as many times as you can.

From 17 take away 5 as many times as you can.

89

1. I had 17 cents. I bought 6 two-cent stamps.  
How much money had I left?

2. I walked 4 miles on Monday, 5 miles on Tuesday,  
and 7 miles on Friday. How far did I walk in the  
three days?

3. Annie is 8 years old. In how many years will  
she be 17?

4. Tops are seven cents each. I have 17 cents.  
I go to the store and buy as many tops as I can.  
What shall I take home?

5. A man had 17 baskets of berries. He went to  
2 houses and sold 4 baskets at each house. How many  
baskets had he left?

6. I bought 4 pencils at 3 cents each and gave  
three 5 cent pieces to pay for them. How much  
change should I get back?

90

$$\begin{array}{rccccc}
 8 + 9 - 6 - & 4 + 9 - & 8 + 6 - & 5 = \\
 11 - 7 + 5 + & 8 - 13 + & 9 - 6 + 10 = \\
 6 + 5 - 9 + 15 - & 8 - 3 + 11 - & 4 = \\
 14 - 8 + 3 + & 8 - 5 - & 7 + 9 - & 6 = \\
 9 + 7 - 5 - & 8 + 14 - 10 + & 8 - 9 =
 \end{array}$$

91

$18 = 10 +$	$18 = 3 +$	$18 - 6 =$	$18 = 2t$
$18 = 9 +$	$18 = 7 +$	$18 - 8 =$	$18 = 6t$
$18 = 14 +$	$18 = 5 +$	$18 - 1 =$	$18 = 1t$
$18 = 16 +$	$18 = 8 +$	$18 - 4 =$	$18 = 9t$
$18 = 17 +$	$18 = 4 +$	$18 - 5 =$	$18 = 3t$
$18 = 13 +$	$18 = 9 +$	$18 - 7 =$	$18 = 18t$

92

$13 + \quad = 18$	$18 - \quad = 16$	$+ \quad 6 = 18$	$18 \div 9 =$
$16 + \quad = 18$	$18 - \quad = 3$	$+ \quad 7 = 18$	$18 \div 3 =$
$11 + \quad = 18$	$18 - \quad = 10$	$+ 12 = 18$	$18 \div 1 =$
$12 + \quad = 18$	$18 - \quad = 4$	$+ \quad 9 = 18$	$18 \div 2 =$
$15 + \quad = 18$	$18 - \quad = 11$	$+ 16 = 18$	$18 \div 6 =$
$10 + \quad = 18$	$18 - \quad = 9$	$+ \quad 3 - 18$	$18 \div 18 =$

93

$18 - 6 - 4 =$	$18 = 6 + 2 +$	$3 + 11 + \quad = 18$
$18 - 3 - 1 =$	$18 = 5 + 7 +$	$4 + 5 + \quad = 18$
$18 - 4 - 4 =$	$18 = 11 + 3 +$	$6 + 3 + \quad = 18$
$18 - 2 - 1 =$	$18 = 7 + 8 +$	$5 + 8 + \quad = 18$
$18 - 6 - 9 =$	$18 = 4 + 9 +$	$7 + 6 + \quad = 18$
$18 - 3 - 4 =$	$18 = 2 + 3 +$	$3 + 9 + \quad = 18$

## PUBLIC SCHOOL ARITHMETIC.

$$\begin{array}{l} 18 - 3t2 = \\ 18 - 6t3 = \\ 18 - 4t4 = \\ 18 - 3t5 = \\ 18 - 2t7 = \\ 18 - 3t4 = \end{array}$$

$$\begin{array}{l} 18 = 14 + 2t \\ 18 = 2 + 8t \\ 18 = 8 + 2t \\ 18 = 6 + 3t \\ 18 = 9 + 3t \\ 18 = 10 + 2t \end{array}$$

$$\begin{array}{l} 18 - 3 - 8 = \\ 18 - 5 - 7 = \\ 18 - 6 - 9 = \\ 18 - 4 - 8 = \\ 18 - 7 - 6 = \\ 18 - 2 - 9 = \end{array}$$

2t  
6t  
1t  
9t  
3t  
18t  
9 =  
3 =  
1 =  
2 =  
6 =  
8 =  
= 18  
= 18  
= 18  
= 18  
= 18  
= 18  
= 18

$$\begin{array}{l} - 9 = 6 \\ + 8 = 17 \\ - 7 = 6 \\ t 3 = 18 \\ - 11 = 5 \\ + 4 = 17 \end{array}$$

$$\begin{array}{l} 18 - 11 + 4 = \\ 17 - 9 - 3 = \\ 9 + 8 - 5 = \\ 13 - 7 + 12 = \\ 18 - 3 - 6 = \\ 7 + 9 - 4 = \end{array}$$

$$\begin{array}{l} - 3 - 6 = 4 \\ - 9 - 5 = 4 \\ - 6 - 7 = 2 \\ - 3 - 2 = 9 \\ - 5 - 4 = 7 \\ + 3 + 7 = 14 \end{array}$$

96

How many 9's in 18?

How many 3's in 9?

How many 3's in two 9's?

How many 3's in 18?

3 is what part of 18?

3 is what part of 9?

One-sixth is what part of one-half?

What will two 3's make?

How many 6's in 18?

What three equal parts will make 6?

How many 2's in 6?

$$18 \left\{ \begin{array}{l} 9 \left\{ \begin{array}{l} 3 \\ 3 \end{array} \right\} 6 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} \\ 3 \left\{ \begin{array}{l} 3 \\ 3 \end{array} \right\} 6 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} \\ 9 \left\{ \begin{array}{l} 3 \\ 3 \end{array} \right\} 6 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} \end{array} \right\}$$

- How many 2's in two 6's?  
 How many 2's in three 6's?  
 How many 2's in 18?  
 2 is what part of 18?  
 2 is what part of 6?  
 One-ninth is what part of  
     one-third?  
 Count by 2's to 18.  
 6 is what part of 18?  
 2 is what part of 18?  
 Count by 6's to 18?  
 Count by 3's to 18?  
 What part of 18 is 3?  
 What part of 18 is 6?  
 What part of 18 is 2?  
 What part of 18 is 9?

- How many 1's in 18?  
 How many 2's in 18?  
 How many 3's in 18?  
 How many 4's in 18?  
 How many 5's in 18?  
 How many 6's in 18?  
 How many 7's in 18?  
 How many 8's in 18?  
 How many 9's in 18?  
 How many 10's in 18?  
 How many 11's in 18?  
 How many 12's in 18?  
 How many 13's in 18?  
 How many 14's in 18?  
 How many 15's in 18?  
 How many 16's in 18?  
 How many 17's in 18?  
 How many 18's in 18?

$18 - 6 \div 2 =$	$3 + 4 + = 18$	$18 = 4 \div 2 +$
$18 - 15 \div 3 =$	$2 + 7 + = 18$	$18 = 9 \div 3 +$
$18 - 18 \div 3 =$	$6 + 3 + = 18$	$18 = 18 \div 3 +$
$18 - 16 \div 4 =$	$4 + 4 + = 18$	$18 = 16 \div 4 +$
$18 - 15 \div 5 =$	$2 + 9 + = 18$	$18 = 15 \div 5 +$
$18 - 12 \div 2 =$	$2 + 6 + = 18$	$18 = 18 \div 9 +$

## PUBLIC SCHOOL ARITHMETIC.

	99	
$3 t 6 - 4 t 3 =$	$16 \div 2 + 9 \div 3 =$	$3 + 7 + 4 =$
$2 t 9 - 2 t 7 =$	$18 \div 3 + 14 \div 2 =$	$9 + 8 - 1 =$
$6 t 3 - 3 t 5 =$	$15 \div 5 + 16 \div 4 =$	$4 + 14 - 7 =$
$7 t 2 - 3 t 2 =$	$12 \div 2 + 14 \div 7 =$	$6 + 5 - 3 =$
$9 t 2 - 3 t 3 =$	$18 \div 6 + 18 \div 2 =$	$18 - 5 - 7 =$
$3 t 5 - 2 t 7 =$	$16 \div 4 + 16 \div 2 =$	$14 - 3 + 6 =$

100

One-ninth of 18 =	One-eighth of 16 =
One-third of 12 =	One-fifth of 15 =
One-fourth of 16 =	One-sixth of 18 =
One-seventh of 14 =	One-third of 18 =

- 2 is what part of 18?  
 2 is what part of 14?  
 2 is what part of 10?  
 2 is what part of 16?  
 3 is what part of 12?  
 3 is what part of 18?  
 3 is what part of 9?

- 4 is what part of 8?  
 4 is what part of 16?

- 5 is what part of 10?  
 5 is what part of 15?  
 6 is what part of 12?

- 2 is what part of 8?  
 2 is what part of 12?  
 2 is what part of 6?  
 2 is what part of 4?

- 3 is what part of 15?  
 3 is what part of 6?  
 1 is what part of 15?

- 4 is what part of 12?  
 1 is what part of 4?

- 6 is what part of 18?  
 7 is what part of 14?  
 9 is what part of 18?

## 101

How many feet in 18 inches?  
How many yards in 18 feet?  
How many pounds in 18 ounces?  
How many quarts in 18 pints?  
How many weeks in 18 days?  
How many dozen in 18 eggs?

## 102

1. A house has 6 windows in one side, 7 in the other, and 2 in each end. How many windows are there in the house?
2. A man sold 3 barrels of apples at 6 dollars a barrel. How much money did he receive for them?
3. Mary's mother put 9 quarts of syrup into pint bottles. How many bottles did she use?
4. On a boat were the owner, his wife and 2 children, and a crew of 13 men. How many people were there on the boat?
5. How many peanuts at 3 cents a pint can Tom buy with 18 cents?
6. Six boys went out camping. Their expenses were:—Tent 5 dollars, boat 3 dollars, milk 2 dollars, butter 3 dollars, meat 4 dollars, and oil 1 dollar. They shared the expenses equally. How much did each boy pay?

## 103

Write in figures:—IX, XVI, XIV, XIII, IV, VI,  
XVIII, XVII, XII, XV, III, XI.

Write in letters:—7, 18, 3, 15, 11, 17, 4, 16, 10, 8, 9, 12.

## PUBLIC SCHOOL ARITHMETIC.

$19 - 10 =$	$19 - 11 =$	$19 = 7 +$	$19 =$	$= 9$
$19 - 9 =$	$19 - 16 =$	$19 = 14 +$	$19 =$	$= 4$
$19 - 6 =$	$19 - 18 =$	$19 = 9 +$	$19 =$	$= 6$
$19 - 8 =$	$19 - 13 =$	$19 = 15 +$	$19 =$	$= 3$
$19 - 3 =$	$19 - 17 =$	$19 = 6 +$	$19 =$	$= 17$
$19 - 5 =$	$19 - 12 =$	$19 = 11 +$	$19 =$	$= 11$

<b>105</b>				
$4 + = 19$	$15 = 19 -$	$19 =$	$= 13$	$+ 9 = 19$
$16 + = 19$	$7 = 19 -$	$19 =$	$= 8$	$+ 3 = 19$
$9 + = 19$	$11 = 19 -$	$19 =$	$= 10$	$+ 14 = 19$
$13 + = 19$	$5 = 19 -$	$19 =$	$= 4$	$+ 7 = 19$
$2 + = 19$	$16 = 19 -$	$19 =$	$= 17$	$+ 11 = 19$
$8 + = 19$	$2 = 19 -$	$19 =$	$= 5$	$+ 16 = 19$

<b>106</b>				
$19 - 6 - 4 =$	$19 = 3 + 9 +$	$8 + 6 +$	$= 19$	
$19 - 3 - 11 =$	$19 = 11 + 6 +$	$3 + 10 +$	$= 19$	
$19 - 4 - 8 =$	$19 = 9 + 4 +$	$6 + 3 +$	$= 19$	
$19 - 8 - 3 =$	$19 = 8 + 7 +$	$4 + 7 +$	$= 19$	
$19 - 2 - 9 =$	$19 = 4 + 8 +$	$5 + 9 +$	$= 19$	
$19 - 5 - 6 =$	$19 = 6 + 7 +$	$7 + 7 +$	$= 19$	

<b>107</b>				
$19 = 3t6 +$	$19 - 4t2 =$	$19 = 3 + 4t$		
$19 = 4t4 +$	$19 - 2t9 =$	$19 = 5 + 2t$		
$19 = 5t3 +$	$19 - 3t3 =$	$19 = 9 + 2t$		
$19 = 2t7 +$	$19 - 4t4 =$	$19 = 11 + 4t$		
$19 = 3t3 +$	$19 - 2t6 =$	$19 = 4 + 3t$		
$19 = 6t2 +$	$19 - 3t6 =$	$19 = 1 + 6t$		

## 108

$19 - 18 \div 3 =$	$4 \div 2 + 18 \div 6 =$	$18 \div 2 +$	$= 19$
$19 - 18 \div 4 =$	$15 \div 3 + 14 \div 2 =$	$4 \div 2 +$	$= 19$
$19 - 15 + 3 =$	$14 \div 7 + 18 \div 2 =$	$16 \div 4 +$	$= 19$
$19 - 8 \div 4 =$	$15 \div 5 + 16 \div 4 =$	$15 \div 3 +$	$= 19$
$19 - 16 \div 2 =$	$16 \div 8 + 18 \div 9 =$	$12 \div 3 +$	$= 19$
$19 - 18 \div 2 =$	$15 \div 3 + 9 \div 3 =$	$12 \div 2 +$	$= 19$

## 109

1. Tom bought 1 pound and 3 ounces of candy. He gave his sister 7 ounces. How much candy had he left?
2. Mary went to town and stayed 2 weeks and 5 days. How many days was she in town?
3. How many yards in 19 feet?
4. Jennie bought 1 foot and 7 inches of ribbon. How many inches of ribbon had she?
5. How many quarts in 19 pints?

## 110

How many 1's in 19?  
 How many 2's in 19?  
 How many 3's in 19?  
 How many 4's in 19?  
 How many 5's in 19?  
 How many 6's in 19?  
 How many 7's in 19?  
 How many 8's in 19?  
 How many 9's in 19?  
 How many 10's in 19?

How many 11's in 19?  
 How many 12's in 19?  
 How many 13's in 19?  
 How many 14's in 19?  
 How many 15's in 19?  
 How many 16's in 19?  
 How many 17's in 19?  
 How many 18's in 19?  
 How many 19's in 19?

## PUBLIC SCHOOL ARITHMETIC.

Add

$$\begin{array}{r} 5 \\ 4 \\ 2 \\ 3 \\ - \end{array}$$

$$\begin{array}{r} 2 \\ 2 \\ 8 \\ 7 \\ - \end{array}$$

$$\begin{array}{r} 1 \\ 8 \\ 3 \\ 6 \\ - \end{array}$$

$$\begin{array}{r} 3 \\ 2 \\ 9 \\ 5 \\ - \end{array}$$

$$\begin{array}{r} 6 \\ 6 \\ 2 \\ 5 \\ - \end{array}$$

$$\begin{array}{r} 4 \\ 7 \\ 3 \\ 5 \\ - \end{array}$$

$$\begin{array}{r} 5 \\ 3 \\ 8 \\ 2 \\ - \end{array}$$

$$\begin{array}{r} 2 \\ 3 \\ 8 \\ 2 \\ - \end{array}$$

$$\begin{array}{r} 2 \\ 8 \\ 4 \\ 3 \\ - \end{array}$$

$$\begin{array}{r} 4 \\ 5 \\ 3 \\ 6 \\ - \end{array}$$

$$\begin{array}{r} 2 \\ 7 \\ 5 \\ 2 \\ 4 \\ 5 \\ - \end{array}$$

$$\begin{array}{r} 5 \\ 4 \\ 8 \\ 3 \\ - \end{array}$$

$$\begin{array}{r} 8 \\ 6 \\ 4 \\ 5 \\ - \end{array}$$

$$\begin{array}{r} 1 \\ 6 \\ 7 \\ 5 \\ - \end{array}$$

$$\begin{array}{r} 5 \\ 2 \\ 9 \\ 3 \\ - \end{array}$$

$$\begin{array}{r} 3 \\ 5 \\ 4 \\ 6 \\ - \end{array}$$

$$\begin{array}{r} 2 \\ 4 \\ 9 \\ 2 \\ - \end{array}$$

$$\begin{array}{r} 8 \\ 7 \\ 3 \\ 1 \\ - \end{array}$$

$$- 13 = 6$$

$$t 6 = 18$$

$$12 + = 19$$

$$\div 2 = 9$$

$$9 + = 16$$

$$17 - = 4$$

$$3 t + 1 = 19$$

$$4 t + 6 = 18$$

$$\div 3 + 7 = 13$$

$$\div 5 + 14 = 17$$

$$- 2 - 7 = 10$$

$$+ 8 + 4 = 19$$

$$8 t 2 + 1 =$$

$$19 - 3 t 4 =$$

$$8 + 9 + 2 =$$

$$- 4 - 11 = 3$$

$$- 14 \div 7 = 11$$

$$6 t 3 - 11 =$$

$$4 t 4 + 2 =$$

$$5 + 3 t 4 =$$

$$19 - 5 t 3 =$$

$$17 - 18 \div 2 =$$

$$8 + 6 + 5 =$$

$$- 3 - 9 = 6$$

$$17 = 1 + 5 + 5 +$$

$$18 = 3 + 5 + 2 +$$

$$19 = 2 + 4 + 6 +$$

$$16 - 2 - 3 - 4 =$$

$$18 - 5 - 4 - 6 =$$

$$19 - 2 - 6 - 3 =$$

$$8 + 6 - 3 =$$

$$14 - 9 + 13 =$$

$$9 + 7 - 2 =$$

$$19 - 5 - 9 =$$

$$4 + 9 + 5 =$$

$$8 - 7 + 4 =$$

112

113

Add

3	3	2	1	3	2	2	2	3	3
2	2	3	3	2	3	1	2	3	2
3	1	1	2	2	1	3	3	1	2
4	2	3	1	3	3	2	2	3	3
1	3	2	3	3	2	2	2	3	2
2	3	3	2	3	3	2	1	3	2
3	2	3	1	3	1	4	3	3	2
-	-	-	-	-	-	-	-	-	-

114

115

Beginning with 19, subtract 2 as often as you can.  
 Beginning with 19, subtract 3 as often as you can.  
 Beginning with 19, subtract 4 as often as you can.  
 Beginning with 19, subtract 5 as often as you can.

Put in the signs:

3	4	7	6	2	12	8	2	6
15	6	9	8	7	15	8	2	4
7	18	11	9	3	3	3	4	12
4	6	19	15	3	5	3	12	9
18	3	6	19	8	11	6	18	3
4	4	16	6	18	12	12	5	17
9	6	15	2	8	16	8	16	2
9	6	13	9	7	16	10	2	5
8	9	17	13	5	18	9	9	18
18	5	13	2	4	2	18	2	9
7	7	1	5	15	3	13	1	13
14	7	2	10	4	14	12	3	4

116

117

- What two equal numbers make 20?
- What two equal numbers make 10?
- How many 10's in 20?
- How many 5's in 10?
- How many 5's in two tens?
- How many 5's in 20?
- 5 is what part of 10?
- 5 is what part of 20?
- 10 is what part of 20?
- Count by 5's to 20.

	Count by 5's to 20.
$2 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} 4$	How many 10's in 20?
$10 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} 4$	What five equal numbers make 10?
$2 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} 4$	How many 2's in 10?
$2 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} 4$	How many 2's in two tens?
$2 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} 4$	How many 2's in 20?
$2 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} 4$	2 is what part of 10?
$2 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} 4$	2 is what part of 20?
$10 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} 4$	One-tenth is what part of one-half?
$2 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} 4$	How many 4's in 20?
$2 \left\{ \begin{array}{l} 2 \\ 2 \end{array} \right\} 4$	4 is what part of 20?

118

5	$20 = 5t$	$20 \div 4 =$	$20 = t 20$	$20 \div = 4$
18	$20 = 2t$	$20 \div 20 =$	$20 = t 4$	$20 \div = 2$
9	$20 = 4t$	$20 \div 10 =$	$20 = t 2$	$20 \div = 5$
13	$20 = 10t$	$20 \div 5 =$	$20 = t 10$	$20 \div = 10$
4	$20 = 20t$	$20 \div 2 =$	$20 = t 5$	$20 \div = 20$

119

16 +	= 20	+ 3 = 20	20 - 12 =	7 = 20 -
18 +	= 20	+ 6 = 20	20 - 4 =	12 = 20 -
15 +	= 20	+ 9 = 20	20 - 17 =	9 = 20 -
10 +	= 20	+ 11 = 20	20 - 8 =	18 = 20 -
13 +	= 20	+ 8 = 20	20 - 15 =	3 = 20 -
19 +	= 20	+ 2 = 20	20 - 11 =	14 = 20 -

120

20 = 14 +	20 =	+ 15	t 4 = 20	t 2 = 20
20 = 8 +	20 =	+ 4	20 = 8 +	÷ 4 = 5
20 = 16 +	20 =	+ 17	÷ 5 = 3	t 3 = 18
20 = 1 +	20 =	+ 7	2 t = 20	16 ÷ = 2
20 = 13 +	20 =	+ 14	20 - = 11	14 + = 20
20 = 9 +	20 =	+ 11	- 8 = 9	- 3 = 17

121

24 - 4 t 4 =	20 - 20 ÷ 5 =	4 = 20 - 2 t
20 - 3 t 2 =	20 - 18 ÷ 2 =	5 = 20 - 3 t
20 - 5 t 3 =	20 - 14 ÷ 2 =	2 = 20 - 2 t
20 - 2 t 9 =	20 - 16 ÷ 4 =	14 = 20 - 3 t
20 - 4 t 5 =	20 - 20 ÷ 2 =	10 = 20 - 5 t
20 - 6 t 2 =	20 - 15 ÷ 5 =	6 = 20 - 2 t

122

20 - 6 - 3 =	20 = 4 + 8 +	20 ÷ 5 + 18 ÷ 3 =
20 - 8 - 9 =	20 = 3 + 5 +	20 ÷ 4 + 16 ÷ 2 =
20 - 7 - 8 =	20 = 11 + 5 +	15 ÷ 3 + 20 ÷ 2 =
20 - 11 - 5 =	20 = 8 + 9 +	14 ÷ 2 + 18 ÷ 6 =
20 - 4 - 7 =	20 = 6 + 7 +	20 ÷ 10 + 9 ÷ 3 =
20 - 5 - 8 =	20 = 8 + 6 +	15 ÷ 5 + 12 ÷ 2 =

$$\begin{array}{r} - 7 - 9 = 4 \\ - 3 - 5 = 11 \\ - 6 - 8 = 5 \\ - 9 - 3 = 8 \\ - 7 - 5 = 7 \\ - 9 - 8 = 3 \end{array}$$

$$\begin{array}{r} 123 \\ 9 + 8 = \\ 18 \div 2 = \\ - 7 = 13 \\ + 16 = 20 \\ t 4 = 20 \\ \div 3 = 6 \end{array}$$

$$\begin{array}{r} 20 = 4 + + 8 \\ 20 = 8 + + 7 \\ 20 = 6 + + 3 \\ 20 = 9 + + 7 \\ 20 = 5 + + 8 \\ 20 = 7 + + 7 \end{array}$$

$$\begin{array}{r} 124 \\ 4 + 6 + = 20 \\ 7 + 5 + = 20 \\ 6 + 8 + = 20 \\ 9 + 7 + = 20 \\ 3 + 8 + = 20 \\ 8 + 7 + = 20 \end{array} \quad \begin{array}{r} 3 + 7 + 4 + 2 = \\ 6 + 9 + 3 + 2 = \\ 3 + 4 + 8 + 4 = \\ 5 + 3 + 6 + 5 = \\ 4 + 5 + 5 + 6 = \\ 2 + 9 + 6 + 1 = \end{array} \quad \begin{array}{r} 4 t 5 - 3 t 2 = \\ 2 t 10 - 3 t 3 = \\ 5 t 4 - 4 t 3 = \\ 6 t 3 - 4 t 2 = \\ 4 t 4 - 3 t 5 = \\ 10 t 2 - 3 t 6 = \end{array}$$

$$\begin{array}{r} 125 \\ 4 t 5 - 2 t 5 = t 5 \\ 6 t 3 - 3 t 3 = t 3 \\ 5 t 2 - 2 t 2 = t 2 \\ 5 t 4 - 3 t 4 = t 4 \\ 6 t 2 - 2 t 2 = t 2 \\ 4 t 3 - 1 t 3 = t 3 \end{array} \quad \begin{array}{r} 20 - = 7 \\ + 12 = 19 \\ \div 6 = 3 \\ 17 - = 4 \\ t 4 = 20 \\ 20 \div = 2 \end{array} \quad \begin{array}{r} - 6 - 4 = 6 \\ - 3 - 9 = 8 \\ - 5 - 3 = 11 \\ - 4 - 8 = 5 \\ - 9 - 9 = 2 \\ - 6 - 8 = 4 \end{array}$$

126  
Write in figures:—XX, XIV, IX, VII, VI, XIX,  
XVIII, IV, XI, XVI, VII, XX, XIII, VIII,  
XVII, III.

Write in letters:—6, 14, 20, 3, 9, 15, 4, 19, 8, 13, 17,  
2, 4, 7, 16, 11.

127

- |                      |                      |
|----------------------|----------------------|
| How many 1's in 20?  | How many 11's in 20? |
| How many 2's in 20?  | How many 12's in 20? |
| How many 3's in 20?  | How many 13's in 20? |
| How many 4's in 20?  | How many 14's in 20? |
| How many 5's in 20?  | How many 15's in 20? |
| How many 6's in 20?  | How many 16's in 20? |
| How many 7's in 20?  | How many 17's in 20? |
| How many 8's in 20?  | How many 18's in 20? |
| How many 9's in 20?  | How many 19's in 20? |
| How many 10's in 20? | How many 20's in 20? |

128

- One-fourth of 20 + one-third of 18 =  
 One-half of 14 + one-sixth of 18 =  
 One-fifth of 20 + one-fifth of 10 =  
 One-half of 12 + one-seventh of 14 =  
 One-tenth of 20 + one-third of 6 =  
 One-fourth of 12 + one-fifth of 20 =  
 One-ninth of 18 + one-half of 18 =

129

- |                               |                          |
|-------------------------------|--------------------------|
| How many feet in 20 inches?   | 20 cents - 2 t 5 cents = |
| How many dozen in 20 eggs?    | 20 cents - 4 t 3 cents = |
| How many yards in 20 feet?    | 20 cents - 6 t 2 cents = |
| How many weeks in 20 days?    | 20 cents - 5 t 3 cents = |
| How many pounds in 20 ounces? | 20 cents - 8 t 2 cents = |
| How many quarts in 20 pints?  | 20 cents - 4 t 4 cents = |

- 130
1. A boy had 20 cents. He spent 5 cents for candy. How much had he left?
  2. A boy had 19 cents. He spent 6 cents for nuts, and 7 cents for marbles. How much had he left?
  3. After spending 8 cents for marbles, Jim had 10 cents left. How much had he at first?
  4. Henry caught 9 fish and Jack caught 7. How many did both catch?
  5. After giving 6 cents for pencils, Mary had two 5 cent pieces left. How much had she at first?

Subtract

131									
16	20	18	13	15	17	20	19	14	
9	14	7	6	9	8	11	6	8	
—	—	—	—	—	—	—	—	—	
20	16	18	19	14	18	16	17	20	
17	11	12	5	3	15	2	5	8	
—	—	—	—	—	—	—	—	—	

132

1. At 5 cents a spool what would 2 spools of thread cost?
2. Oranges are 5 cents each. What would you pay for 3 oranges?
3. What will 5 yards of ribbon cost, at 4 cents a yard?
4. How many days in 2 weeks?
5. Will sold 3 barrels of apples at 6 dollars a barrel. How much did he receive?

6. Elsie bought 4 pencils at 3 cents each. What did she pay for them?

7. At 10 cents each, what would 2 balls cost?

Add

3	6	4	3	7	3	5	2	4	
5	4	5	5	2	4	5	2	2	
2	3	4	5	3	2	3	7	3	
4	2	3	3	5	3	4	6	3	
5	3	4	1	2	6	2	3	5	
-	-	-	-	-	-	-	-	-	

Subtract

19	18	17	13	11	19	20	14	15	
3	11	6	4	7	12	18	9		
-	-	-	-	-	-	-	-	-	

### 134

1. Jack had 20 cents. He bought 3 oranges at 4 cents each. How much had he left?

2. Helen spent 9 cents for candy, and she bought 2 bags of pop-corn at 5 cents each. How much money did she spend?

3. A man worked 6 days and earned 3 dollars a day. He bought a hat for 2 dollars, a pair of shoes for 5 dollars, and a coat for 4 dollars. How much money had he left?

4. One day Mary gave 4 little girls each 5 cents. How much did she give away?

5. Ted paid 3 cents for a pencil and 4 times as much for a book. How much did he spend?

6. What is the cost of 3 tons of coal at 3 dollars a ton?

$$\begin{array}{r}
 135 \\
 20 - 3t \quad 2 - 2t \quad 4 + 7 = \\
 7 + 3t \quad 4 - 3t \quad 2 - 4 = \\
 13 - 18 \div 3 + 8 - 9 + 2t \quad 7 = \\
 5t \quad 4 - 14 \div 2 - 6 + 9 - 12 = \\
 20 \div 5 + 3t \quad 3 + 2t \quad 3 - 11 =
 \end{array}$$

136

1. Harry spends 5 cents for marbles, 3 cents for a pencil, 6 cents for candy, and 4 cents for ink. How much did he spend?

2. A farmer had 19 turkeys. He sold 6 of them on Monday and 8 on Tuesday. How many had he left?

3. John's overcoat cost 16 dollars. His hat cost one-eighth as much. How much did both cost?

4. A boy worked 9 days and earned 2 dollars a day. He spent 4 dollars for his board. How much had he left?

5. John had 5 dollars. He worked 3 days and earned 4 dollars a day. How much money had he then?

6. Mary bought 2 pencils at 5 cents each, and a slate for 8 cents. How much did she spend?

$$\begin{array}{r}
 137 \\
 20 = t9 + 2 \quad 18 = \div 3 + 13 \quad 20 - 6 - 7 = \\
 20 = t3 + 8 \quad 19 = \div 2 + 12 \quad 19 - 3 - 7 = \\
 18 = t2 + 4 \quad 20 = \div 4 + 16 \quad 20 - 9 - 4 = \\
 19 = t6 + 1 \quad 11 = \div 2 + 3 \quad 20 - 4 - 8 = \\
 20 = t2 + 6 \quad 14 = \div 2 + 5 \quad 20 \div 5 + 6 =
 \end{array}$$

## 138

1. A quart bottle holds how many pints?
2. Mary has 9 quart bottles and a pint bottle. She wants to fill them with fruit. How many pints of fruit must she have?
3. A man had 18 baskets of berries. If he sold three baskets to each of 4 customers how many had he left?
4. At one dollar a day, how much can a woman earn in the working days of three weeks?
5. What change should Jennie get from a five-cent piece and a dime, if she buys 2 loaves of bread at 5 cents each and 2 buns at 2 cents each?

Subtract

## 139

7	9	10	11	8	9	12	16	13
4	5	4	7	5	3	7	9	6
—	—	—	—	—	—	—	—	—
15	7	9	8	11	12	17	13	11
8	2	3	4	6	8	12	8	9
—	—	—	—	—	—	—	—	—
15	14	18	19	13	19	20	14	20
13	11	15	14	2	6	15	8	16
—	—	—	—	—	—	—	—	—

## 140

1. If 2 apples cost 6 cents. What is the value of each?
2. Two boys earned 20 cents. What did each one earn?

3. Roy's father brought home 15 oranges, which he divided equally among his 5 children. How many oranges did each child get?
4. If 4 yards of ribbon cost 20 cents. What is the value of 1 yard?
5. We had 18 words for spelling. I had one-sixth of the words mis-spelled. How many did I spell correctly?
6. I paid 20 cents for 4 quarts of milk. What was each quart worth?

Put in the signs

141

8	6	14	$+$	= 14	3 t	= 18
3	6	18	$-$	= 8	$\div$ 6	= 3
20	4	5	$t$	= 16	$+ 9$	= 16
11	18	7	$\div$	= 6	$- 11$	= 9
13	6	9	$+$	= 15	$t \quad 4$	= 12

142

1. A boy gave 18 cents for 3 pens. What did each pen cost?

2. Four sheep are worth 12 dollars. What is the value of each?

3. In an orchard there are 16 trees. They are in rows. There are 4 trees in each row. How many rows are there?

4. We have 3 tables in our room. They cost 18 dollars. What did each table cost?

5. Mary bought 5 spools of thread for 20 cents. What did she pay for each?

143

$$\begin{array}{rcl}
 t = 18 & t = 16 & t = 20 \\
 t = 18 & t = 16 & t = 20 \\
 t = 18 & t = 16 & t = 20 \\
 t = 18 & t = 16 & t = 20 \\
 t = 18 & t = 16 & t = 20
 \end{array}$$

144

1. A man had 15 horses. He put them into 3 barns, putting the same number into each. How many horses were there in each barn?

2. A man earns 18 dollars in a week. He spends one-ninth of it for a hat. How much has he left?

3. If 3 oranges cost 12 cents, what will 5 cost?

4. Six sheep are worth 18 dollars. Find the value of each.

5. Jack earned 20 dollars in 5 weeks. What did he earn in 3 weeks?

145

$$20 \div \left\{ \begin{array}{l} 5 = \\ 2 = \\ 1 = \\ 4 = \\ 10 = \\ 20 = \end{array} \right. \quad 18 \div \left\{ \begin{array}{l} 3 = \\ 9 = \\ 18 = \\ 6 = \\ 2 = \\ 1 = \end{array} \right. \quad 16 \div \left\{ \begin{array}{l} 4 = \\ 2 = \\ 16 = \\ 8 = \\ 1 = \end{array} \right.$$

$$19 - \begin{cases} 4 = \\ 11 = \\ 2 = \\ 13 = \\ 6 = \\ 15 = \end{cases} \quad 17 - \begin{cases} 8 = \\ 3 = \\ 11 = \\ 2 = \\ 9 = \\ 16 = \end{cases} \quad 20 - \begin{cases} 6 = \\ 13 = \\ 8 = \\ 9 = \\ 2 = \\ 10 = \end{cases}$$

146

1. Mary paid 8 cents for 2 pencils. What would 5 pencils cost?
2. Tom sold 5 marbles for 15 cents. What was the value of 2 marbles?
3. A man bought six hats and paid 18 dollars for them. What were 5 hats worth?
4. Fred earned 15 cents and his uncle gave him 5 cents more. He then bought 3 peaches at 3 cents a piece. How many cents had he left?
5. If you have 8 cents, how many more cents do you need to buy book that costs 20 cents?

147

2 nines and	= 20	13 +	= 20
3 sixes and	= 19	7 t	= 2 =
5 threes and	= 19	8 +	6 =
4 fours and	= 18	t	4 = 16
9 twos and	= 19	19 -	7 =
6 threes and	= 20	9 t	= 18
2 sevens and	= 20	15 -	= 9

## 148

1. A man paid 20 dollars for 4 tons of coal. What was the value of 3 tons?
2. Three spools of silk cost 18 cents. Find the value of 2 spools?
3. Ned earned 16 dollars in 4 weeks. What did he earn in 3 weeks?
4. A boy who had 4 cents went on four errands, earning 3 cents for each. How much money did he have then?
5. Sadie made a pound of candy. She gave Jennie one-eighth of it. She gave Allie one-fourth of it. How many ounces did she have left?

Add

3	5	6	3	4	2	3	5	3
4	5	4	4	2	2	2	5	6
3	3	5	3	6	2	5	5	3
4	3	2	5	5	6	5	1	3
2	4	1	3	2	3	4	2	5
<hr/>								

## 149

1. Fred had 15 cents. How many oranges could he buy at 5 cents each?
2. Coal is 6 dollars a ton. How many tons could be bought for 18 dollars?
3. At 2 cents a quart for picking berries, how many quarts would John have to pick to earn 12 cents?
4. Milk is 10 cents a quart. How many quarts can I buy with 20 cents?
5. A man earns 4 dollars a day. How long will it take him to earn 16 dollars?

## 150

$$\begin{array}{rcl} 3 + & = 16 \\ + 9 & = 17 \\ t 3 & = 18 \\ - 4 & = 16 \\ t 2 & = 20 \end{array}$$

$$\begin{array}{rcl} 151 & & \\ t 4 & = 20 \\ 11 + & = 19 \\ + 3 & = 6 \\ 4 t 5 & = \\ - 8 & = 11 \end{array}$$

$$\begin{array}{rcl} 20 - 3 - 6 - 2 - 4 & = \\ 19 - 1 - 5 - 7 - 2 & = \\ 20 - 4 - 4 - 4 - 4 & = \\ 19 - 3 - 3 - 3 - 3 & = \\ 18 - 1 - 2 - 2 - 2 & = \end{array}$$

152

1. There were 20 pupils in a school. They marched out in 4 rows. How many were there in each row?
2. In the winter milk is 3 cents a pint. How many pints could you get for 15 cents?
3. Millie found a dime and spent half of it for a doll. At that price, how many could she have bought with 20 cents?
4. Jennie has 6 roses, three lilies, and seven pansies. How many flowers had she?
5. Rice is 6 cents a pound. How many pounds could I buy for 18 cents?
6. A newsboy sells papers at 2 cents each. How many must he sell to get fourteen cents?

$$\begin{array}{rcl} 2 t 2 t 2 & = \\ 3 t 3 t 2 & = \\ 3 t 1 t 2 & = \\ 5 t 1 t 2 & = \end{array}$$

$$\begin{array}{rcl} 153 & & \\ 2 t 3 t 2 & = \\ 4 t 2 t 2 & = \\ 1 t 1 t 1 & = \\ 1 t 8 t 2 & = \end{array}$$

$$\begin{array}{rcl} 2 t 3 t 3 & = \\ 1 t 7 t 2 & = \\ 2 t 5 t 2 & = \\ 4 t 3 t 1 & = \end{array}$$

## 154

1. Two boys dig a garden in 3 days. How long would it take 1 boy to dig it?
2. Three men cut a field of hay in 3 days. How long would it take one man to cut it?
3. Three boys pick up the potatoes in a garden in 2 hours. How long would it take one boy to do it?
4. It took 4 days for 3 boys to pick up a pile of stones. How long would it have taken 1 boy?
5. Five boys have enough hand bills to distribute to keep them busy for 3 hours. How long would it take one of them to distribute all of them?

## 155

17 - one-half of 18 =	16 - one-fourth of 20 =
20 - one-third of 12 =	15 - one-sixth of 18 =
19 - one-seventh of 14 =	20 - one-ninth of 18 =
One-sixth of 12 + 7 =	One-fifth of 15 + 9 =
One-half of 14 + 9 =	One-tenth of 20 + 11 =
One-third of 15 + 8 =	One-eighth of 16 + 7 =

## 156

1. Jennie had 19 cents. She spent 5 cents for a ball, 8 cents for a doll, and 2 cents for gum. How much had she left?
2. If nuts are 4 cents a quart, how much will Fred have to pay for 5 quarts?
3. At 16 cents a pound, how much will 8 ounces of raisins cost?

4. A house has 6 windows in one side, seven in the other, and two in each end. How many windows are there in the house?
5. Joe got Harry and Will to help him pick the strawberries. They got it done in 4 hours. How long would it have taken Joe to do it alone?
6. Apples are worth 5 dollars a barrel. How many barrels could I buy for 20 dollars?
7. Will bought 6 marbles for 18 cents. What would he pay for 5 marbles?